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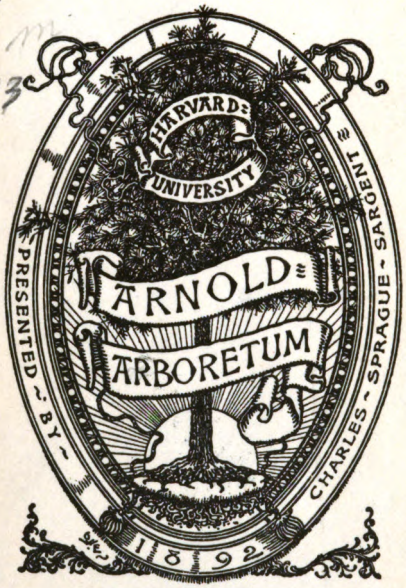

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MANUAL

OF

BRITISH BOTANY.

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#

MANUAL

OF

BRITISH BOTANY,

CONTAINING THE

FLOWERING PLANTS AND FERNS

ARRANGED ACCORDING TO

THE NATURAL ORDERS.

BY

CHARLES C. BABINGTON, M.A.,

F.L.S., F.G.S., ETC. ETC.

LONDON:

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1843.

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PREFACE.

From the attention which has long been paid to the elucidation of the Flora of Britain and the numerous excellent botanists who have, since the time of the justly celebrated Ray (not to go further back), employed their talents upon an endeavour to determine the indigenous products of these kingdoms, the Author, in common it is believed with most English botanists, did not suppose that much remained to be done in British botany; for he could not expect that after the labours of such men as Smith, Hooker, Lindley, and others, and the publication of so invaluable and unrivalled a collection of figures as is contained in the *English Botany*, there could still be many questions concerning the nomenclature, or any considerable number of unascertained species, the determination of which would fall to his lot. He had not however advanced far in the critical examination of our native plants before he found that a careful comparison of indigenous specimens with the works of eminent continental authors, and with plants obtained from other parts of Europe, must necessarily be made, for it appeared that in very many cases the nomenclature employed in England was different from that used in other countries, that often plants considered as varieties here were held to be distinct species abroad, that several of our species were only looked upon as varieties by them, and also that the mode of grouping into genera was frequently essentially different.

The discovery of these facts produced considerable astonishment, and the author was led to consider what could have been the causes of so remarkable a discrepancy. The following appears to be the most probable explanation. It is well known that at the close of the last century Sir J. E. Smith became the fortunate possessor of the Herbarium of Linnæus, and was thus enabled to ascertain, with very considerable accuracy, the British species which were known to that distinguished man, and to publish, in the

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most improved form that he had given to his system, a remarkably complete and excellent Flora of Britain. Then followed the long-continued separation of this country from France, and indeed from most of the European nations, by which we were almost completely prevented from observing the progress which botanical science was making in other countries, and at the same time our own flora was continually receiving accessions of new plants which it was nearly impossible to identify with the species detected and published in France and Germany. At the conclusion of the War we had become so wedded to the system of Linnæus, and it may even perhaps be allowable to add, so well satisfied with our own proficiency, that, with the honourable exception of Mr. Brown, there was at that time scarcely a botanist in Britain who took any interest or paid the least attention to the classification by Natural Orders which had been adopted in France, and to the more minute and accurate examination of plants which was caused by the employment of that philosophical arrangement. Let it not however be supposed that the author wishes at all to detract from the value of the Linnæan system—a system which was considered by its author as merely a provisional arrangement or kind of index to the known plants; for no botanist has more strongly stated the value of a natural classification than Linnæus himself,—as he fully believes that without some such artificial scheme by which newly discovered plants could be catalogued for easy reference, the multitudinous species which distant countries have supplied would long since have formed so enormous and confused a mass as to have reduced botany to a state little better than that into which it had fallen at the commencement of the Linnæan era.

The publication of so complete and valuable a Linnæan work as the *English Flora* greatly contributed to the permanency of this feeling, and accordingly we find that at a very recent period working English botanists were unacquainted with any of the more modern continental floras, and indeed even now many of those works are only known by name to the great mass of the cultivators of British botany.

In the present work it has been the Author's endeavour to adopt in all cases those names which have the claim of priority, unless good cause could be shown for a contrary

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proceeding, and with this object he has carefully examined nearly all the best European Floras, comparing our plants with the descriptions contained in them, and in very many cases with foreign specimens of undoubted authenticity. In the adoption of genera and species an endeavour has been made, by the examination of the plants themselves, to determine what are to be considered as truly distinct, thus, it is hoped, taking Nature as a guide, and not depending upon the authority of any name, however distinguished. Still let it not be supposed that any claim is made to peculiar accuracy, nor that the Author considers himself qualified to dictate to any student of botany, for he is well aware that there are many points upon which persons who have carefully studied the subject may form different conclusions from those to which he has been led.

The present volume being intended to form a field-book or travelling companion for botanists, it was advisable to restrict the space allotted to each species as much as possible, and accordingly it will be found that the characters and observations are only such as appeared to be necessary for their accurate discrimination. Synonyms have been almost wholly omitted, but at least one British and one German figure of each plant is quoted in all cases in which it could be done with accuracy. Localities are only given for new or peculiarly rare plants, the existence of so complete a work as Mr. Watson's *New Botanist's Guide* having made it unnecessary inconveniently to swell the present volume by their introduction; but in order to convey some idea of the distribution of plants throughout the United Kingdom, the letters E, S, and I have been appended to the descriptions of such species as are only found in England, Scotland, or Ireland respectively,—all plants without such an addition having been observed in each of them. An O has been appended to a very few plants which only occur in the Channel Islands, or which, although included in our lists, there is reason to suppose have never been really detected in Britain, thus pointing out that they have little or no right to be considered as natives or even denizens. The descriptions of a considerable number of doubtful species which have been added to our Flora by previous writers, or which, although decidedly naturalized, have very slender claims to be considered as aboriginal natives, are included within [ ], and notices of a few plants

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concerning which more accurate information is requisite are distinguished in a similar manner. A very concise Synopsis of the genera, according to the Linnæan method, is given for the convenience of those botanists who may not be quite familiar with the Natural Orders.

Dr. Lindley's valuable *Introduction to the Nat. Syst. of Botany* being accessible to nearly all the readers of this little work, it has not been considered advisable to introduce detailed descriptions of the Orders; but in the preparation of the short distinctive characters the author has availed himself of that work, of Dr. Arnott's elaborate treatise contained in the *Encyclop. Britan.* (ed. 7. vol. v. pp. 30–141), of *Endlicher's Genera Plantarum* and *Koch's Synopsis Floræ Germanicæ*. To the latter work, which may be considered as the model of the present publication, he has pleasure in acknowledging himself to be peculiarly indebted, and *Leighton's* excellent *Flora of Shropshire* has supplied much valuable information.

To his friends Prof. Balfour of Glasgow and D. Moore, Esq. of the Glasneven Botanical Garden at Dublin, he is under very great obligation for their kindness in supplying him with complete Catalogues of the Floras of Scotland and Ireland respectively; and to them, to W. Borrer, Esq., E. Forster, Esq., Prof. Henslow, the Rev. W. A. Leighton, and his other botanical friends and correspondents too numerous to record here, he takes this opportunity of returning most sincere thanks for the great assistance that they have rendered to him by the communication of valuable suggestions, observations, and specimens.

It is hoped that those who use this book will favour the author with information of any (even the slightest) addition, correction or alteration that may appear to be necessary, in order that it may be employed in the preparation of a future edition, as it is only through such assistance that the Flora of an extensive country can attain to even a moderate degree of perfection.

St. John's College, Cambridge,
May 1, 1843.

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ABBREVIATIONS.

In the descriptions.

anth. ... anthers.
caps. ... capsule.
carp. ... carpel.
cor. ... corolla.
fl. ... flower.
fr. ... fruit.
in. ... inches.
L. l. ... leaves.
pet. ... petals.
sep. ... sepals.
st. ... stem.
stam. ... stamens.
stip. ... stipules.

Figures.

E. B. ... English Botany.
E. B. S. ... Supplement to E. B.
R. ... Reichenbach's Icones Floræ Germanicæ.
R. Icon. ... Reichenbach's Iconographia Botanica.
St. ... Sturm Deutschlands Flora.

Duration.

A. ... Annual.
B. ... Biennial.
P. ... Perennial.
Sh. ... Shrub.
T. ... Tree.

Native country.

E. ... England.
S. ... Scotland.
I. ... Ireland.
O. ... Not certainly known to have been found in either of the three.

† ... Possibly introduced but now having the appearance of being a true native.
* ... Certainly naturalized.

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CLASSES AND ORDERS

IN THE

LINNÆAN ARTIFICIAL SYSTEM.

CLASSES.

** Flowers perfect, each with stamens and pistils.*

Cl. 1. MONANDRIA, stam. 1.
2. DIANDRIA, stam. 2.
3. TRIANDRIA, stam. 3.
4. TETRANDRIA, stam. 4.
5. PENTANDRIA, stam. 5.
6. HEXANDRIA, stam. 6.
7. HEPTANDRIA, stam. 7.
8. OCTANDRIA, stam. 8.
9. ENNEANDRIA, stam. 9.
10. DECANDRIA, stam. 10.
11. DODECANDRIA, Stam. 12—19.
12. ICOSANDRIA, stam. 20 or more, inserted on the calyx.
13. POLYANDRIA, stam. 20 or more, inserted on the receptacle.
14. DIDYNAMIA, stam. 4; 2 long and 2 short.
15. TETRADYNAMIA, stam. 6; 4 long and 2 short. Fl. cruciform.
16. MONADELPHIA, filaments united below in 1 set.
17. DIADELPHIA, filaments united in 2 sets. Fl. papilionaceous.
18. POLYADELPHIA, filaments united in 3 or more sets.
19. SYNGENESIA, stam. 5, anth. united. Fl. compound.
20. GYNANDRIA, stamens and pistils combined.

*** Stamens and pistils in different flowers.*

21. MONŒCIA, stam. and pistils on the same individual.
22. DIŒCIA, stam. and pistils on different individuals.
23. POLYGAMIA, fl. perfect and unisexual on the same or on different individuals.

**** Fructification concealed.*

24. CRYPTOGAMIA.

ORDERS.

The Orders in the first 13 Classes are founded on the number of styles or stigmas in each flower; viz. MONOGYNIA, 1 style; DIGYNIA, 2 styles; &c. The Orders of the other Classes are explained in the Synopsis of Genera.

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SYNOPSIS

OF

THE GENERA OF BRITISH PLANTS,

ARRANGED ACCORDING TO

THE LINNÆAN SYSTEM.

The number prefixed to each Genus indicates the page where the description of the Species will be found.

Where the group is a natural one the Order is referred to for the generic characters.

Class I. MONANDRIA. Stamen 1.

Order I. MONOGYNIA. Style 1.

251. SALICORNIA. Perianth single, tumid. Fr. included in the enlarged perianth.
108. HIPPURIS. Perianth single with a very indistinct rim crowning the ovary.
145. CENTRANTHUS. Perianth double.
(See *Alchemilla*, Nat. Ord. 27.)

Order II. DIGYNIA.

108. CALLITRICHE.

Class II. DIANDRIA.

Order I. MONOGYNIA.

* *Fl. inferior. Perianth single or none.*

326. RUPPIA. Perianth 0. Nuts 4.
321. LEMNA. Perianth single, urceolate.
328. CLADIUM. Perianth single, a chaffy glume.

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** *Fl. inferior, monopetalous, regular. Perianth double.*

197. LIGUSTRUM. Cor. 4-cleft. Berry with 2 cells and 4 seeds.
197. FRAXINUS. Cor. 4-cleft or 0. Caps. compressed, 2-celled, 2-seeded.

*** *Fl. inferior, monopetalous, irregular. Perianth double. Carp. simple.*

239. PINGUICULA. Cal. 5-fid. Cor. ringent. Caps. 1-celled.
239. UTRICULARIA. Cal. of 2 sepals. Cor. ringent. Caps. 1-celled.
222. VERONICA. Cor. 4-cleft, rotate. Caps. 2-celled.

**** *Fl. inferior, monopetalous, irregular. Perianth double. Carp. 4-lobed.*

230. LYCOPUS. Filaments simple. Anthers 2-celled.
230. SALVIA. Filaments bifid; 1 branch barren. Anth. 1-celled.

***** *Fl. superior. Perianth double.*

107. CIRCÆA. Cal. of 2 sepals connected below. Cor. of 2 petals.
(Pet. 0. *Salicornia*, Nat. Ord. 66. *Fraxinus*, N. O. 50. *Rhynchospora*, N. O. 90.)
(Pet. 4. *Lepidium* and *Senebiera*, N. O. 6.)

Order II. DIGYNIA.

356. ANTHOXANTHUM. Perianth glumaceous. A grass.

Class III. TRIANDRIA.

Order I. MONOGYNIA.

* *Fl. superior, with calyx and corolla.*

146. Nat. Order 44. VALERIANEÆ.

** *Fl. superior. Perianth single, petaloid.*

297. Nat. Order 79. IRIDEÆ.

*** *Fl. inferior, glumaceous, chaffy.*

326. Nat. Order 90. CYPERACEÆ. Sheaths of the leaves entire. Stem angular. Cor. 0.
378. NARDUS. Cor. of 2 valves. Cal. 0. A grass.
(*Juncus*, N. O. 86.)

Order II. DIGYNIA.

349. Nat. Order 91. GRAMINEÆ. Fl. glumaceous. Grasses.

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Order III. TRIGYNIA.

110. MONTIA. Cal. of 2 leaves. Cor. of 1 petal. Caps. 3-valved, 3-seeded.
111. POLYCARPON. Cal. of 5 leaves. Pet. 5. Caps. 1-celled, 3-valved.
47. HOLOSTEUM. Cal. of 5 leaves. Pet. 5. Caps. 1-celled, opening with 6 teeth at the end.
(*Tillæa*, N. O. 38.)

Class IV. TETRANDRIA.

Order I. MONOGYNIA.

* *Perianth double. Cal. double, inner adnate to the fr. Cor. monopetalous.*

148. Nat. Order 45. DIPSACEÆ.

** *Perianth double. Cal. single. Cor. monopetalous, inferior.*

246. PLANTAGO. Segments of cor. reflexed. Stam. very long.
200. CICENDIA. Cor. salvershaped, spreading. Stam. included. Caps. opening at the top by two valves.
243. CENTUNCULUS. Cor. tubular, spreading. Stam. included. Caps. bursting transversely.
(*Gentiana*, N. O. 52.)

*** *Perianth double. Cal. single. Cor. monopetalous, superior.*

141. Nat. Order 43. RUBIACEÆ. Limb of the cor. often obsolete.

**** *Perianth double. Pet.* 4.

10. EPIMEDIUM. Cor. inferior.
139. CORNUS. Cor. superior.
(*Cardamine*, N. O. 6. *Senebiera*, N. O. 6. *Euonymus*, N. O. 24.)

***** *Perianth single.*

302. MAIANTHEMUM. Perianth petaloid, 4-parted, inferior.
89. ALCHEMILLA. Perianth a calyx, inferior, 8-parted: 4 larger and 4 smaller.
88. SANGUISORBA. Perianth a calyx, inferior, 4-parted. Stam. inserted on a ring closing the tube.
267. PARIETARIA. Perianth inferior, 4-parted, bellshaped. Stam. at its base.
107. ISNARDIA. Perianth superior, 4-parted, persistent.

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Order II. DIGYNIA.

44. Buffonia. Cal. of 4 persistent sepals. (*Cuscuta*, N. O. 54.)

Order III. TETRAGYNIA.

196. Ilex. Cal. 4-toothed. Cor. rotate. Berry with 4 1-seeded nuts.
51. Moenchia. Pet. 4. Caps. 1-celled, opening at the top with 8 teeth.
45. Sagina. Pet. 4. Caps. 1-celled, opening with 4 valves.
64. Radiola. Cal. 4-fid : lobes 2—3-fid. Pet. 4. Caps. with 8 cells and 8 valves.
112. Tillæa. Cal. 3—4-parted. Caps. several, each 2-seeded.
322. Potamogeton. Perianth single, of 4 scales. Drupes 4. (*Cerastium*, N. O. 15.)

Class V. PENTANDRIA.

Order I. MONOGYNIA.

* *Cor. monopetalous, inferior. Ovary 4-lobed. Fr. 4 nuts.*

203. Nat. Order 55. Borragineæ.

** *Cor. monopetalous, inferior. Caps. 1-celled. Stam. opposite to the segments of the corolla.*

240. Nat. Order 62. Primulaceæ (in part).

*** *Cor. monopetalous, inferior. Stam. and cor.-segments alternate.*

198. Nat. Order 52. Gentianeæ (in part). Fr. 1- or imperfectly 2-celled, many-seeded.
209. Nat. Order 56. Solaneæ. Fr. 2-celled, many-seeded. Stam. inserted on the corolla.
202. Polemonium. Fr. 3-celled. Stam. inserted on the tube of the corolla.
202. Nat. Order 54. Convolvulaceæ. Fr. 2—3-celled, mostly few-seeded. Stam. inserted on the base of the corolla.
194. Azalea. Fr. 2—3-celled. Stam. inserted on the receptacle.
197. Vinca. Fr. consisting of 2 follicles.

**** *Cor. monopetalous, superior.*

186. Nat. Order 47. Campanulaceæ. Stam. separate from the corolla. Fr. a capsule.

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141. LONICERA. Stam. on the irregular cor. Fr. a berry.
244. SAMOLUS. Stam. on the half-inferior bellshaped cor. and opposite to its segments, 5 scales (barren stam.) above. Fr. a capsule.

***** *Cor. of 4 or 5 petals, inferior.*

64. IMPATIENS. Fl. irregular. Sep. 3, unequal, deciduous. Pet. 3.
33. VIOLA. Fl. irregular. Sep. 5, persistent. Pet. 5.
66. RHAMNUS. Fl. regular. Stam. opposite to the petals.
66. EUONYMUS. Fl. regular. Stam. alternate with the petals.

****** *Perianth single.*

244. GLAUX. Perianth inferior, bellshaped, coloured.
261. THESIUM. Perianth superior, persistent.
(*Illecebrum* and *Herniaria*, N. O. 34.)

Order II. DIGYNIA.

* *Perianth single or pet. resembling abortive stamens.*

268. ULMUS. Caps. compressed, winged all round. L. with stipules.
248. Nat. Order 66. CHENOPODIACEÆ (in part). Caps. not winged. Stip. 0.
111. HERNIARIA. Cal. 5-cleft; segments plano-concave. Pet. (or abortive stam.) 5, setaceous.
111. ILLECEBRUM. Cal. of 5 thick laterally compressed hooded leaves. Pet. (or abortive stam.) 5, subulate.

** *Perianth double. Cor. monopetalous, inferior.*

201. SWERTIA. Caps. 1-celled. Cor. rotate, its base with nectariferous pores.
200. GENTIANA. Caps. 1-celled, 2-valved. Cor. without nectariferous pores.
203. CUSCUTA. Caps. 2-celled, bursting transversely. Cor. bellshaped.

*** *Perianth double, superior. Cal.-limb often obsolete. Pet.* 5.
120. Nat. Order 38. UMBELLIFERÆ.

Order III. TRIGYNIA.

65. STAPHYLEA. Pet. 5, inferior. Caps. 2 or 3, inflated.
37. TAMARIX. Pet. 5, inferior. Caps. 1-celled, 3-valved. Seeds numerous.
111. CORRIGIOLA. Pet. 5, inferior. Caps. 1-seeded, not opening.

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141. VIBURNUM. Cor. superior. Berry 1-seeded.
140. SAMBUCUS. Cor. superior. Berry 3-seeded.
(*Polycarpon*, N. O. 34.)

Order IV. TETRAGYNIA.

36. PARNASSIA. Nectaries 5, heartshaped, fringed with stalked glands.

Order V. PENTAGYNIA.

63. LINUM. Ovary 1, 10-celled.
90. SIBBALDIA. Ovaries 5, free.
244. STATICE. Ovary 1, 1-seeded. Fl. in loose panicles.
245. ARMERIA. Ovary 1, 1-seeded. Fl. capitate.
(*Cerastium* and *Spergula*, N. O. 15.)

Order VI. HEXAGYNIA.

35. DROSERA. Ovary 1, 1-celled, many-seeded.

Order VII. POLYGYNIA.

4. MYOSURUS. Ovaries many, 1-seeded, on a very long receptacle.

Class VI. HEXANDRIA.

Order I. MONOGYNIA.

* *Fl. with calyx and corolla.*

10. BERBERIS. Cal. inferior, 6-leaved. Pet. 6.
38. FRANKENIA. Cal. inferior, 5-parted. Pet. 5. Caps. 1-celled.
103. PEPLIS. Cal. inferior, 6-parted. Pet. 6. Caps. 2-celled.
(*Lythrum*, N. O. 28.)

** *Perianth single, coloured, superior.*

299. Nat. Order 80. AMARYLLIDEÆ.

*** *Perianth single, coloured, inferior, 6-parted.*

301. CONVALLARIA. Perianth bellshaped. Fr. a berry.
308. AGRAPHIS. Perianth tubular-bellshaped. Fr. a capsule.
308. MUSCARI. Perianth globose or cylindrical, contracted at the mouth.

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**** *Perianth single, coloured, inferior, of 6 leaves.*

† Style trifid.

301. ASPARAGUS. Perianth tubular below, persistent. Fr. succulent.
303. FRITILLARIA. L. of perianth each with a nectariferous cavity at the base. Fr. dry.

†† Style entire or 0. Stigma obtuse or 3-lobed.

304. GAGEA. Anth. erect, their base attached to the end of the filament.

Anthers incumbent.

304. LILIUM. L. of perianth with a longitudinal nectariferous furrow below.
304. LLOYDIA. L. of perianth with a transverse nectariferous fold below.

Nectary none.

305. ALLIUM. Umbel inclosed in a spath before flowering.
310. NARTHECIUM. Spath 0. Filaments bearded. Style trigonous.
304. ORNITHOGALUM. Spath 0. Filaments inserted on the receptacle. Style trigonous.—Fl. white or yellow.
305. SCILLA. Spath 0. Filaments at the base of the perianth. Style trigonous.—Fl. never white or yellow.
303. TULIPA. Spath 0. Style 0. Stigma 3-lobed.
320. ACORUS. Spath 0. Style 0. Stigma obscurely 3-lobed. Fl. on a spadix.

***** *Perianth single, glumaceous, inferior.*

310. JUNCUS. Caps. 3-celled, 3-valved. Seeds numerous.
315. LUZULA. Caps. 3-celled, 3-valved. Seeds 3.

Order II. DIGYNIA.

156. OXYRIA. Perianth 4-leaved.

Order III. TRIGYNIA.

308. COLCHICUM. Perianth funnelshaped; tube very long.
309. TOFIELDIA. Perianth 6-leaved. Caps. 3, connected up to the middle.
318. SCHEUCHZERIA. Perianth 6-leaved. Caps. 3, inflated.
319. TRIGLOCHIN. Perianth 6-leaved. Caps. 3—6, united to a longitudinal receptacle.
254. RUMEX. Perianth 6-leaved. Caps. 1, triquetrous. Styles feathery.

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Order IV. HEXAGYNIA.

318. Actinocarpus. Caps. combined at the base, radiating, 6—8.

Order V. POLYGYNIA.

317. Alisma. Caps. many, clustered, distinct.

Class VII. HEPTANDRIA.

244. Trientalis. Cal. and cor. 7-parted. Style 1. Caps. 1-celled, 7-valved.

Class VIII. OCTANDRIA.

Order I. MONOGYNIA.

* *Flowers with calyx and corolla.*

59. Acer. Cal. inferior, 5-parted. Pet. 5. Fr. 2-winged.
106. Œnothera. Cal. superior, 4-parted. Pet. 4. Seeds without hairs.
104. Epilobium. Cal. superior, 4-parted. Pet. 4. Seeds hairy at the end.
199. Chlora. Cal. inferior, 8-fid.
190. Nat. Order 48. Ericaceæ (in part). Cal. and cor. inferior, 4—5-fid.
194. Vaccinium. Cal. and cor. superior, 4—5-fid.

** *Perianth single.*

261. Daphne. Limb of the perianth 4-fid, deciduous, inferior.

Order II. DIGYNIA.

257. Polygonum. Perianth single, inferior.
120. Chrysosplenium. Perianth single, half-superior.

Order III. TRIGYNIA.

(*Polygonum*, N. O. 67.)

Order IV. TETRAGYNIA.

138. Adoxa. Cal. 2-fid, cor. 4-fid in the terminal fl.; cal. 3-fid, cor. 5-fid in the lateral fl.
38. Elatine. Cal. 3—4-parted. Pet. 3—4. Anth. terminal.
301. Paris. Sep. and pet. 4. Filaments continued beyond the anth.

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Class IX. ENNEANDRIA.

318. Butomus. Perianth of 6 coloured leaves. Stigmas 6.

Class X. DECANDRIA.

Order I. MONOGYNIA.

190. Nat. Order 48. Ericaceæ (in part). Cor. 5-cleft or of 5 petals.

Order II. DIGYNIA.

112. Scleranthus. Cal. 5-cleft. Pet. 0.
116. Saxifraga. Cal. 5-toothed or 5-parted. Pet. 5. Fr. with 2 beaks.
41. Saponaria. Cal. 5-toothed, naked below. Pet. 5.
40. Dianthus. Cal. 5-toothed, with scales at the base. Pet. 5.
(*Chrysosplenium*, N. O. 37. *Polygonum*, N. O. 67.)

Order III. TRI- TETRA- PENTA- GYNIA.

39. Nat. Order 15. Caryophylleæ (in part). Caps. opening by teeth at the end or valves.
42. Cucubalus. Fr. a berry. Styles 3.
65. Oxalis. Caps. 5-celled, opening at the angles. Pet. connected below.
113. Sedum. Caps. 5. Pet. 5.
114. Cotyledon. Caps. 5. Cor. tubular, 5-cleft.
(*Adoxa*, N. O. 39.)

Class XI. DODECANDRIA.

262. Asarum. Perianth 3-fid, superior. Style 1.
103. Lythrum. Cal. tubular, inferior, with 10 teeth. Pet. 6. Style 1.
89. Agrimonia. Cal. turbinate, with hooked bristles. Pet. 5. Styles 2.
31. Reseda. Pet. irregular. Styles 3. Caps. open at the end.
114. Sempervivum. Pet. and styles 12 or more.
(Styles 3. *Euphorbia*, N. O. 73.)
(Styles 4. *Potentilla*, N. O. 27.)

Class XII. ICOSANDRIA.

84. Nat. Order 27. Rosaceæ (in part).

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Class XIII. POLYANDRIA.

Order I. MONOGYNIA.

11. Nat. Order 4. PAPAVERACEÆ. Sep. 2. Pet. 4.
9. ACTÆA. Sep. 4. Pet. 4.
32. HELIANTHEMUM. Æstivation of cal. twisted. Pet. 5.
56. TILIA. Æstivation of cal. valvate. Pet. 5.
10. Nat. Order 3. NYMPHÆACEÆ. Pet. numerous.

Order II. DI- POLY- GYNIA.

1. Nat. Order 1. RANUNCULACEÆ. Cal. and cor. inferior.
287. STRATIOTES. Cal. and cor. superior, in threes.
(*Reseda*, N. O. 7.)

Class XIV. DIDYNAMIA.

Order I. GYMNOSPERMIA.

[Fr. deeply 4-lobed, resembling 4 seeds.]

225. Nat. Order 59. LABIATÆ.
(*Verbena*, N. O. 60.)

Order II. ANGIOSPERMIA.

[Seeds in a distinct capsule.]

213. Nat. Order 57. OROBANCHEÆ. Caps. 1-celled, many-seeded. Placentas parietal.
219. LIMOSELLA. Caps. 1-celled (except at the bottom). Placentas central, free.
215. Nat. Order 58. SCROPHULARINEÆ (in part). Caps. 2-celled.
141. LINNÆA. Ovary 3-celled. Fr. 1-seeded.
239. VERBENA. Ovary 4-celled. Seeds 2—4, pericarp evanescent.

Class XV. TETRADYNAMIA.

14. Nat. Order 6. CRUCIFERÆ.

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Class XVI. MONADELPHIA.

Order I. PENT- DEC- ANDRIA.

[Stam. 5—10.]

59. Nat. Order 20. GERANIACEÆ.
(*Lysimachia*, N. O. 62. *Linum*, N. O. 21. *Oxalis*, N. O. 23. Part of *Leguminosæ*, N. O. 26.)

Order II. POLYANDRIA.

54. Nat. Order 16. MALVACEÆ.

Class XVII. DIADELPHIA.

13. Nat. Order 5. FUMARIACEÆ. Stam. 6.
36. Nat. Order 11. POLYGALEÆ. Stam. 8.
66. Nat. Order 26. LEGUMINOSÆ. Stam. 10.

Class XVIII. POLYADELPHIA.

56. Nat. Order 18. HYPERICINEÆ. Stam. numerous.

Class XIX. SYNGENESIA.

149. Nat. Order 46. COMPOSITÆ.

Class XX. GYNANDRIA.

287. Nat. Order 78. ORCHIDEÆ. Stam. 1 or 2.
262. ARISTOLOCHIA. Stam. 6. Stigma with 6 lobes.

Class XXI. MONŒCIA.

Order I. MONANDRIA.

[Stam. 1.]

263. EUPHORBIA. Involucre bellshaped, inclosing numerous male fl. and 1 female flower. Cor. and cal. wanting.
321. ARUM. Spath of 1 sheathing leaf, inclosing numerous female fl. and numerous male fl. above them. Cal. and cor. wanting.
108. CALLITRICHE. Bracts 2 petaloid, or 0. Involucre, spath, cal. and cor. wanting.

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Class XXIV. CRYPTOGAMIA.

379. Nat. Order 92. EQUISETACEÆ. Leafless branched plants with sheathed articulations. Fructification in terminal catkins.

381. Nat. Order 93. FILICES. Leafy plants. Fructification attached to the veins, either on the back or edge of the leaves.

392. Nat. Order 94. MARSILEACEÆ. Creeping plants with slender leaves. Fructification consisting of globular nearly sessile coriaceous 3—4-celled capsules.

392. Nat. Order 95. LYCOPODIACEÆ. Plants with imbricated leaves. Capsules axillary, solitary.

NOTE.—In the character of *Erodium*, at page 60, the glands are erroneously stated to be at the base of the sterile instead of the fertile filaments.

ERRATA.

Page 133, line 16, for *Pucedaneæ* read *Peucedaneæ*.
— — — 17, for *Pucedanum* read *Peucedanum*.

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MANUAL

OF

BRITISH BOTANY.

I. VASCULAR PLANTS.

Substance composed of cellular tissue, woody fibre and spiral vessels. Epidermis with stomata. Embryo with cotyledons.

Class I. DICOTYLEDONES or EXOGENÆ.

Stems formed of bark wood and pith. The wood furnished with medullary rays and increasing by the addition of concentric layers externally. Leaves mostly with reticulated veins. Cotyledons 2 or more, opposite or whorled.

Subclass I. THALAMIFLORÆ.

Petals distinct, and as well as the stamens hypogynous.

Order I. RANUNCULACEÆ.

Sep. 3, 5 or 6. Pet. 5 or more, rarely 0. Stam. indefinite: anth. adnate, opening longitudinally. Carp. numerous, distinct, or united into a single pistil. Seeds erect or pendulous.

* *Anthers extrorse.*

Tribe I. *CLEMATIDEÆ*. Fruit 1-seeded with a feathery awn. Seed pendulous. Æstivation valvate or induplicate. Leaves opposite.

1. Clematis. Cal. of 4 or 5 sepals. Pet. 0. Carp. not bursting, awned.

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Tr. II. *ANEMONEÆ*. Fr. 1-seeded. Seed pendulous. Æstivation imbricate. Leaves radical or alternate.

2. THALICTRUM. Cal. of 4 or 5 sepals. Pet. 0. Carp. not bursting, without awns.

3. ANEMONE. Cal. petaloid, sep. 5—9. Pet. 0. *Carp.* not bursting, *tipped with the persistent* sometimes feathery *styles*, inserted upon a thickened hemispherical or conical receptacle.

4. ADONIS. Cal. of 5 sepals. *Pet.* 5—10, without a nectary. *Carp.* not bursting, *without awns.*

Tr. III. *RANUNCULEÆ*. Fr. 1-seeded. Seed erect (except in *Myosurus*). Æstivation imbricate. Pet. with a nectariferous pore at their base.

5. MYOSURUS. Cal. of 5 sepals, prolonged into a spur at the base. Pet. 5, with a filiform tubular claw. *Carp.* not bursting, *closely imbricated upon a long filiform receptacle.* Seed pendulous. Embryo inverted with the radicle superior.

6. RANUNCULUS. Cal. of 5, rarely 3, sepals. Pet. 5, rarely numerous: nectariferous pore naked or covered by a scale. *Carp.* not bursting, *collected into a globular or elliptical head.*

Tr. IV. *HELLEBOREÆ*. Fr. many-seeded, bursting. Æstivation imbricate.

7. CALTHA. Cal. of 5 petaloid deciduous sepals. *Pet.* 0. Caps. 5—10, many-seeded.

8. TROLLIUS. Cal. of 5 or many petaloid deciduous sepals. *Pet. small, linear, flat,* clawed. Caps. numerous, sessile.

[9. ERANTHIS. Cal. of 5—8 petaloid deciduous sepals. *Pet. small, tubular,* with a long claw, *2-lipped,* inner lip very short. *Caps.* numerous, *stalked.*]

10. HELLEBORUS. Cal. of 5 petaloid persistent sepals. Pet. small, tubular, 2-lipped, clawed. *Caps.* 3—10 *sessile.*

11. AQUILEGIA. Cal. of 5 petaloid deciduous sepals. *Pet.* 5, *funnel-shaped, with a long hornlike spur.* Caps. 5.

12. DELPHINIUM. Cal. of 5 petaloid deciduous sepals, *superior sep. with a* long *spur* at the base. *Pet.* 4, 2 *upper ones with spurs included in the spurred sepal, or all combined into one spurred petal.* Caps. 1, 3 or 5.

13. ACONITUM. Cal. of 5 petaloid sepals, upper one helmet-shaped. *Two upper pet. tubular, on long stalks, concealed in the helmet-shaped sepal.* Caps. 3—5.

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** *Anthers introrse.*

Tr. V: *PÆONIEÆ* or spurious Ranunculaceæ.

14. ACTÆA. Cal. of 4 petaloid deciduous sepals. Pet. 4. *Carp.* 1, baccate, *indehiscent*, many-seeded.

15. PÆONIA. Cal. of 5 persistent sepals. Pet. 5 or more. *Follicles* 2—5, many-seeded, *bursting inwards*, crowned with the bilaminated stigmas.

Tribe I. *Clematideæ.*

1. CLEMATIS *Linn.*

1. *C. Vitalba* (L.); st. climbing, l. pinnate, leaflets ovate acuminate entire coarsely serrate or inciso-lobate rounded or cordate below, petioles twining, sep. oblong downy on both sides, fr. with long feathery awns.—*E.B.* 612. *R.* 4667.—St. woody, angular, branched. Petioles acting as tendrils. The form with nearly entire scarcely lobed leaves with a rounded not cordate base, is probably *C. scandens*, Borkh.—Hedges and thickets on a calcareous soil. Sh. VI. *Traveller's Joy.*—E. S.

Tribe II. *Anemoneæ.*

2. THALICTRUM *Linn.*

1. *T. alpinum* (L.); st. perfectly simple and almost naked, cluster terminal simple, fruitstalks reflexed, carp. shortly stalked, curved at the end.—*E. B.* 262. *R.* 4625.—St. 3—6 in. high, quite smoooth. L. mostly radical, upon long stalks, twice ternate.—Higher parts of mountains. P. VI. VII.

2. *T. minus* (L.); st. zigzag striated branched, l. 2—3-pinnate, leaflets ternate 3-cleft glaucous, *stipules rounded* spreading cut, *fl. panicled* drooping, "carp. attenuated at both ends."—*E. B.* 11.—St. 1—2 feet high. Leaflets bluntish.—Stony pastures or by the sea side. P. VI. VII.

3 ?*T. majus* (Crantz); st. zigzag angular branched above, l. 3-pinnate, leaflets ternate trifid broad glaucous, *stip.* "*crescent-shaped* notched," *fl. subumbellate* drooping, carp. elliptical obliquely rounded below.—*E. B.* 611.—St. 3—6 feet high. Leaflets very broad, acute, the uppermost often entire and ovate. Perhaps only a variety of *T. minus*, but I think distinguishable by the above characters.—Bushy hills in the south of Scotland and north of England. P. VI. VII. E. S.

4. *T. flavum* (L.); st. erect furrowed, l. bipinnate, leaflets broadly obovate or wedge-shaped trifid, *panicle* compact *corymbose*, *fl. erect.*—*E. B.* 367.—L. rather paler beneath. Root creeping. The lower subdivisions of the petiole with stipules

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and the root creeping; or, no partial stipules and a fibrous root; characterize the *T. flavum* and *T. rufinerve* of Koch's Synopsis, but these characters do not appear to be permanent, if indeed the fibrous rooted plant really exists. In the fens of Cambridgeshire the plant has an extensively creeping root and partial stipules.—In wet fields. P. VI. VII. *Common Meadow Rue.*

3. Anemone *Linn.*

1. *A. Pulsatilla* (L.); fl. solitary erect, involucre sessile in deep linear segments, l. doubly pinnate, leaflets pinnatifid: lobes linear, *carp. with feathery tails.—E. B.* 51.—Fl. violet-purple, externally silky. Involucre silky, close to the flower, but, by the elongation of the stalk, distant from the fruit.—Open chalky pastures. P. IV. V. *Pasque flower.* E.

2. *A. nemorosa* (L.); fl. solitary, *sep.* 6 elliptical, involucre of 3 ternate or quinate stalked leaves with lobed and cut leaflets, l. similar, *carp.* pubescent *keeled.—E. B.* 355. *R.* 4644.—Fl. white or purplish. Carp. with a beak of nearly their own length but not tailed. Root (rhizoma) horizontal. Sep. glabrous on both sides.—In groves and thickets; common. P. III.—V. *Wood Anemone.*

*3. *A. apennina* (L.); fl. solitary, *sep. numerous lanceolate,* involucre of 3 ternate stalked deeply cut leaves, l. similar, "*carp. pointed* without tails."—*E. B.* 1062. *R.* 4645.—Fl. bright blue. Root similar to the last.—A doubtful native. P. IV. E.

*?4. *A. ranunculoides* (L.); fl. solitary or in pairs, *sep. 5 elliptical,* involucre of 3 nearly sessile ternate deeply cut leaves, l. similar often quinate, *carp. pointed* downy without tails.—*E. B.* 1484. *R.* 4643.—Fl. bright yellow. "Sep. externally pubescent." Root similar to the last.—A very doubtful native. P. IV. E.

4. Adonis *Linn.*

† 1. *A. autumnalis* (L.); cal. glabrous patent, pet. connivent, carp. without teeth collected into an ovate head and tipped with a straight beak.—*E. B.* 308. *R.* 4621.—Fl. scarlet, black at the base. L. triply and copiously pinnatifid, segments linear.—Corn fields, rare. A. VII. *Corn Pheasant's Eye.* E. S.

Tribe III. *Ranunculeæ.*

5. Myosurus *Linn.*

1. *M. minimus* (L.). The only species.—*E. B.* 435. *R.* 4569.—St. simple, leafless, single-flowered, 2—5 in. high. Receptacle very long, with numerous oblong carpels. L. linear. The seed being attached to the upper part of the carp. makes it pendulous with the radicle pointing upwards; this difference from the true *Ranunculi* is only apparent, and is caused by the singular point

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of attachment of the seed, the radicle being in fact inferior as pointed out by De Candolle.—In damp places in fields. A. V. VI. *Mousetail.* E.

6. RANUNCULUS *Linn.*

* *Carp. transversely wrinkled, nectary naked, fl. white.*

1. *R. aquatilis* (L.); st. floating, submersed l. divided into numerous capillary *segments spreading on all sides*, floating l. reniform 3—5-parted: divisions lobed, carp. transversely rugose unequally ovate with an obtuse terminal point.—*R.* 4576.—L. all more or less stalked, fl. white.—*α. heterophyllus* (Wallr.); floating leaves reniform. *E. B.* 101.—*β. pantothrix* (Bab.); l. all multifid and setaceous.—In ponds and ditches. P. V. VI. *Water Crowfoot.*

2. *R. circinatus* (Sibth.); st. submersed ascending, l. all submersed divided into numerous capillary 2—4 times forked rigid *segments spreading in one plane*, carp. transversely rugose semiovate laterally tipped with the long acute incurved style.—*E. B. S.* 2869. *R.* 4575. *R. divaricatus*, Koch.—L. very rarely with short stalks, always remarkably flat and rigid with a circular outline. Fl. white.—In ponds and ditches, not confined to stagnant water. P. VI.—VIII. E. S.

3. *R. fluitans* (Lam.); st. floating, leaves all submersed repeatedly 2—3-chotomous; *segments elongated setaceous parallel*, carp. transversely rugose obovate with a short obtuse straight lateral point.—*E. B. S.* 2870. *R.* 4577.—L. remarkably long and upon very long stalks, together often 1 foot or more in length. Fl. large, white. Very rarely a few terminal "subtrifid truncate" floating leaves are found. It appears to me to be impossible to doubt that this and the two preceding are truly distinct species. See *Ann. Nat. Hist.* iii. 225.—In rivers and brooks, but not confined to running water. P. VI. VII. E. S.

4. *R. hederaceus* (L.); *st. creeping, l. all* roundish *reniform* with 3—5 rounded entire lobes, carp. transversely rugose, *stam.* 5—10.—*E. B.* 2003. *R.* 4573.—Pet. usually narrow and scarcely so long as the calyx, sometimes (*β. grandiflorus*) broad and much longer than the calyx. Distinguished from the 3 preceding by its few stamens and truly creeping stem without any capillary divided leaves.—In wet places. P. VI.—VIII. *Ivy Crowfoot.*

** *Carp. not transversely wrinkled, nectary with a small scale (except in* R. alpestris).

† L. divided, fl. white, nectary naked.

5. *R. alpestris* (L.); root fibrous, l. smooth, radical l. somewhat heart-shaped deeply 3—5-lobed: lobes inciso-crenate at the extremity, stem l. 1 "or 2" simple linear "or trifid with

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linear lobes," fl. almost solitary, peduncle furrowed, calyx glabrous, carp. obovate with a straight beak hooked at the end.—*E. B.* 2390.—Pet. obcordate, white, nectary naked. St. 4—5 in. high. The figure in *E. B.* represents the leaves of this plant as much more acutely lobed and the lobes more decidedly separated than is the case in my foreign specimens or in *R.* 4581. Can the Clova plant be *R. Traunfellneri* (Hoppe), a specimen of which (from Croatia) in my Herb. is well represented by the *E. B.* figure?—In moist places on the Clova mountains. *Mr. G. Don.* P. V. S.

†† L. undivided, fl. yellow.

[6. *R. gramineus* (L.); root fibrous, *the fibres thickening towards the end,* l. linear-lanceolate striated entire, stem and peduncles glabrous few-flowered, carp. obliquely obovate rugose with a short revolute point, *nectary tubular.*—*E. B.* 2306. *R.* 4594.—Reported by Withering to have been found in N. Wales. P. V. VI.] E?

7. *R. Flammula* (L.); root fibrous, *l.* ovate- or linear-lanceolate nearly entire *stalked, stem reclining* at the base *and rooting, carp.* obovate minutely *pitted with a short point.*—*E. B.* 387. *R.* 4595.—Stems 6—18 in. high. L. sometimes serrated, hairy or glabrous.—*β. reptans*; st. procumbent filiform rooting, l. linear. *R. reptans* (L.), *Lightf. Fl. Scot. t.* 1.—In very wet places. P. VI.—VIII. *Lesser Spearwort.*

8. *R. ophioglossifolius* (Vill.); root fibrous, *lower l. cordate-ovate stalked,* upper l. oblong sessile amplexicaule, *stem erect* hollow, *carp.* obliquely ovate margined *tuberculated* with a short terminal point.—*E. B. S.* 2833. *R.* 4613. *Vill. Delph.* t. 49.—Fl. small. St. about 1 foot high, branched, many-flowered, tapering below and throwing out whorls of fibrous roots from its lower joints. Whole plant glabrous.—In St. Peter's Marsh, Jersey. A. VI. O.

9. *R. Lingua* (L.); root fibrous, *l.* elongate-lanceolate acute somewhat serrated *sessile* amplexicaule, *stem erect, carp.* margined minutely *pitted with a* broad *sword-shaped* beak.—*E. B.* 100. *R.* 4597.—Fl. large. St. 2—3 feet high, throwing out whorls of fibrous roots from its lower joints. St. and l. glabrous or with adpressed hairs.—In marshy places, rather rare. P. VI. VII. *Great Spearwort.*

10. *R. Ficaria* (L.); *root* with *fasciculated* tubers, *l. cordate stalked* angular or crenate, st. leafy single-flowered, sep. usually 3, *carp. smooth* blunt.—*E. B.* 584. *R.* 4572.—Pet. usually 8, but varying from 6 to 11. St. 3—8 in. long, weak, often producing bulbs in the axils of its leaves.—Damp shady places, common. P. IV. V. *Pilewort.*

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††† L. divided, fl. yellow, carp. smooth.

11. *R. auricomus* (L.); *root fibrous, radical l. reniform* tripartite with crenate or cut lobes: petioles sheathing below, stem l. sessile digitate with linear-lanceolate more or less toothed segments, peduncles round, calyx pubescent, *carp. downy* ventricose: beak slender hooked.—*E. B.* 624. *R.* 4599.—Pet. often wanting. Sep. yellow. St. about one foot high.—Woods and thickets common. P. IV. V. *Wood Crowfoot.*

12. *R. acris* (L.); *root fibrous,* radical l. palmately tripartite: segments trifid and deeply cut, uppermost stem l. tripartite with linear segments, *peduncles round, calyx* pubescent *erecto-patent, carp.* oval *glabrous* margined: beak short marginal recurved, *receptacle glabrous.*—*E. B.* 652. *R.* 4606.—Hairy. St. 2—3 feet high. Beak about ¼ of the length of the carpel.—Meadows and pastures, common; also on mountains. P. VI. VII. *Upright Crowfoot.*

13. *R. repens* (L.); *scions creeping,* l. with 3 stalked leaflets which are 3-lobed: lobes 3-fid and cut, *peduncles furrowed, calyx* pubescent *erecto-patent,* carp. oval glabrous margined minutely pitted: beak longish slightly curved, *receptacle hairy.*—*E. B.* 516. *R.* 4610.—Primary stem erect, 10—12 in. high.—Meadows and pastures, common. P. V.—VIII. *Creeping Crowfoot.*

14. *R. bulbosus* (L.); *stem bulbous* at the base, radical l. with 3 stalked leaflets which are tripartite: segments trifid and cut, *peduncles furrowed, calyx* hairy *reflexed,* carp. round margined smooth: beak short, receptacle hairy.—*E. B.* 515. *R.* 4611.—St. about 1 foot high. Upper l. cut into narrow segments.—Meadows and pastures. P. V. *Bulbous Crowfoot.*

†††† L. divided, fl. yellow, carp. rugose or tubercular.

15. *R. hirsutus* (Curt.); root fibrous, radical l. with 3 stalked trifid and cut leaflets, peduncles furrowed, calyx reflexed, *carp.* round margined *with a series of tubercles near the margin*: beak short curved, receptacle hairy.—*E. B.* 1504. *R.* 4617. *R. Phylonotis* (Ehrh.) Koch.—St. 4—18 in. high, the smaller specimens are *R. parvulus* L. Upper l. in narrow acute segments. Fl. pale yellow.—Waste land and corn-fields, rare. A. VI.—X. E. S.

16. *R. sceleratus* (L.); root fibrous, lower l. stalked tripartite: segments blunt crenate, upper l. trifid inciso-dentate, calyx reflexed, *heads of fr. oblong, carp.* minute *wrinkled.*—*E. B.* 681. *R.* 4598.—Fl. very small, pale yellow. Lower l. broad, glabrous, shining. Stem 1—2 feet high, throwing out whorls of fibrous roots from its lower joints.—By ditches and ponds. A. VI.—IX. *Celery-leaved Crowfoot.*

†17. *R. arvensis* (L.); root fibrous, radical l. 3-cleft dentate, stem l. once or twice ternate with linear-lanceolate segments,

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calyx erecto-patent, *carp.* margined *beaked and spinous.*—*E. B.* 135. *R.* 4614.—Fl. pale yellow. Known by its spinous fruit.—Corn-fields. A. VI. *Corn Crowfoot.*

18. *R. parviflorus* (L.); root fibrous, *stems prostrate,* l. roundish-cordate 3—5-lobed cut, upper l. oblong undivided or 3-lobed, calyx at first erect afterwards reflexed, carp. orbicular muricated. —*E. B.* 120. *R.* 4616.—Peduncles opposite the leaves. St. spreading. Pet. narrow.—Corn-fields and dry banks, rare. A. V. VI. E. I.

Tribe IV. *Helleboreæ.*

7. Caltha *Linn.*

1. *C. palustris* (L.); *st. ascending, l. heart-shaped rounded* crenate.—*E. B.* 506. *R.* 4712.—Fl. large. Sep. roundish-ovate, bright yellow.—*β. minor* (DC.); smaller in all its parts and with the l. considerably shorter in proportion, but the posterior lobes greatly produced.—Marshy places, common. *β.* in more mountainous situations. P. III. IV. *Marsh Marigold.*

2. *C. radicans* (Forst.); *st. creeping,* l. triangular somewhat heart-shaped serrate-crenate.—*E. B.* 2175. *Forst. in Linn. Trans.* viii. *t.* 17.—Fl. half the size of those of *C. palustris,* sep. narrower, the hinder angles of the leaves scarcely at all produced so that the leaf is almost triangular. I have only seen cultivated specimens.—"In a ditch that runs from the farm-house called Haltoun, on the estate of C. Gray, Esq. of Carse, Forfarshire. 1790." *Mr. G. Don*; all the other stations probably belong to *C. palustris β. minor.* P. V. VI. S.

8. Trollius *Linn.*

1. *T. europæus* (L.); sep. 10—15 concave converging into a globe, pet. 10 about as long as the stam., l. palmately 5-parted: segments rhomboid 3-partite inciso-serrate.—*E. B.* 28. *R.* 4713. —Fl. bright yellow. Pet. ligulate. St. 1—2½ feet high.—Damp mountain pastures. P. VI. VII. *Globe Flower.*

9. Eranthis *Salisb.*

[*1. *E. hyemalis* (Salisb.); sep. 6—8 oblong.—*R.* 4714. *Helleborus* Linn.—Radical l. upon long stalks, 5—7-parted, deeply cut into linear-oblong segments. St. 4—6 in. high, with 2 opposite sessile l. just below the solitary yellow fl. Root (rhizoma) tuberous.—Naturalized in thickets in the south of England. P. II. III. *Winter Aconite.*] E. S.?

10. Helleborus *Linn.*

1. *H. viridis* (L.); radical *l. digitate* stalked, stem l. sessile at the ramifications, st. few-flowered, *calyx spreading.*—*E. B.* 200. *R.* 4718.—Veins of the l. prominent beneath. Stigma erect.

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St. 1 foot high, annual. Fl. greenish-yellow.—Thickets on a calcareous soil. P. III. IV. *Green Hellebore*, E. I.

†2. *H. fœtidus* (L.); *l. pedate* stalked, upper l. gradually becoming ovate bracts, st. leafy many-flowered, *calyx converging*.—*E. B.* 613. *R.* 4715.—Upper l. gradually contracting and their petioles widening until they become bracts. St. 2 feet high. Fl. globose, drooping, greenish tipped with purple.—Thickets on a calcareous soil, but usually near houses. P. III. IV. *Stinking Hellebore*. E. S.

11. AQUILEGIA *Linn.*

1. *A. vulgaris* (L.); spur of the pet. incurved, limb obtuse rather shorter than the stamens, l. biternate, leaflets 3-lobed crenate.—*E. B.* 297. *R.* 4729.—St. 2—3 feet high, slightly leafy. Caps. hairy. Inner stam. frequently imperfect.—Woods and thickets. P. V. VI. *Columbine*.

12. DELPHINIUM *Linn.*

†1. *D. Consolida* (L.); st. erect branched, racemes few-flowered, spur longer than the calyx, pet. combined.—*E. B.* 1839. *R.* 4669. —Pedicels usually longer than the bracts. Caps. downy. Fl. of a vivid and permanent blue, rarely red, pink or white. L. deeply multifid.—Sandy or chalky corn-fields; not noticed by Ray. A. VI. VII. *Field Larkspur*. E. S.

13. ACONITUM *Linn.*

†1. *A. Napellus* (L.); nectaries horizontal upon curved stalks: spurs bent down, fl. racemose, young carpels diverging.—*E. B. S.* 2730. *R.* 4700.—Filaments slightly hairy, with cuspidate wings. Nectary inflated above, its lip broad. Helmet open, hemispherical. Pedicels erect, downy. I have had great difficulty in determining the identity of our plant with that of Reichenbach, but believe them to be the same.—Banks of rivers and brooks, rare. VI. VII. *Monk's-hood*. E. S.

Tribe V. *Pæonieæ.*

14. ACTÆA *Linn.*

1. *A. spicata* (L.); raceme simple elongated, pet. as long as the stamens, berries oval.—*E. B.* 918. *R.* 4739.—L. stalked, 2-ternate: leaflets ovate, trifid, deeply cut. St. 1—2 feet high.—Mountainous limestone tracts in the north. P. V. E. S.

15. PÆONIA *Linn.*

†1. *P. corallina* (Retz.); l. 2-ternate, leaflets ovate entire glaucous beneath, caps. downy recurved from the base.—*E. B.* 1513. *R.* 4745.—Root fleshy, knobbed. Herb 2 feet high. Fl. large, crimson with yellow anthers.—On the Steep Holmes Island in the Severn. P. V. VI. E.

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Order II. BERBERIDEÆ.

Sep. 3, 4 or 6, in a double row. Pet. the same number. Stam. indefinite, opposite to the petals. Anth. opening by valves from the bottom to the top. Ovary 1, 1-celled, seeds attached to the bottom.

1. BERBERIS. Cal. of 6 deciduous sepals. Pet. 6, each with 2 glands at the base within. Berry two-seeded.

[2. EPIMEDIUM. Cal. of 4 deciduous sepals. Pet. 4. Nectaries 4, cup-shaped. Caps. podlike, many-seeded.]

1. BERBERIS *Linn.*

1. *B. vulgaris* (L.); spines 3-parted, l. obovate ciliate-serrate, racemes pendulous many-flowered, petals entire.—*E. B.* 49. *R.* 4426.—Fl. yellow. Berries red, oblong, slightly curved. Filaments curiously elastic.—Hedges and thickets. S. V. VI. *Barberry.*

2. EPIMEDIUM *Linn.*

[1. *E. alpinum* (L.); root leaves 0, stem l. twice ternate.—*E. B.* 438. *R.* 4485.—Leaflets heartshaped, serrate. Panicle shorter than the leaf and appearing to grow from the petiole. Fl. red with yellow nectaries.—Subalpine woods. It has very slender claims to be considered as a native. P. V.] E. S.

Order III. NYMPHÆACEÆ.

Sep. 5, 4 or 6, passing gradually into the petals, and these into the numerous stamens, all inserted on a fleshy disk more or less completely surrounding the ovaries. Stig. simple. Fruit many-celled: ovules numerous, attached to the spongy dissepiments. Embryo in a bag on the outside of the base of the albumen.

1. NYMPHÆA. Cal. of 4 sepals. Pet. numerous, inserted together with the stamens upon a fleshy disk enveloping the germen. Berry many-celled, many-seeded. Stigma sessile, of numerous rays.

2. NUPHAR. Cal. of 5 sepals. Pet. numerous, inserted together with the stamens upon the receptacle. Berry many-celled, many-seeded. Stigma sessile, of numerous rays.

1. NYMPHÆA *Linn.*

1. *N. alba* (L.); l. roundish deeply cordate entire with approximate lobes even beneath, stigma of 12—20 rays.—*E. B.* 160.—Fl. large, white, floating. Stigmas yellow. Ovary covered with the stamens almost to its summit. Caps. dissolving

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away into a mass of pulp.—Slow rivers, lakes and clear ditches. P. VII. *White Water Lily.*

2. NUPHAR *Sm.*

1. *N. lutea* (Sm.); l. oblong cordate, sep. 5, *stigma with* 10—20 *rays not extending to the entire margin, anthers linear oblong.—E. B.* 159. *Fl. Lond. n. s.* 141.—Fl. yellow, with a smell like brandy. Caps. bursting irregularly.—Lakes and ditches. P. VII. *Yellow Water Lily.*

2. *N. pumila* (Hoffm.); l. ovate deeply cordate with distant lobes, sep. 5. *Stigma with* 8—10 *rays* extending to the margin and *forming acute teeth*, anth. short. – *E. B.* 2292. *R. Icon. t.* 119. *Fl. Lond. n. s.* 170.—Fl. yellow, small. Caps. furrowed upwards. According to Hooker closely allied to the *N. kalmiana* of N. America.—In small highland lakes. P. VII. VIII. S.

Order IV. PAPAVERACEÆ.

Sep. 2. Cor. regular, of 4 petals. Stam. generally numerous, free. Ovary free, placentas parietal, seeds numerous. Stigmas as many as the placentas, simple or lobed, the lobes of adjoining stigmas combining thus appearing (falsely) to be opposite to the placentas.

* *Seeds not crested.*

1. PAPAVER. Pet. 4. Stam. numerous. *Style* 0. *Stigmas* 4—20, radiating, *sessile*. Caps. obovate, opening by pores beneath the stigma.

2. MECONOPSIS. Pet. 4. Stam. numerous. *Style short. Stigmas* 5—6, radiating, free. Caps. obovate, opening by pores beneath the apex.

3. ROEMERIA. Pet. 4. Stam. numerous. *Stigmas* 2—4, *sessile. Caps.* elongated, 2—4-*valved*, 1-celled, *placentas distinct.*

4. GLAUCIUM. Pet. 4. Stam. numerous. Stigmas 2, sessile. *Caps.* elongated, 2-*valved, placentas connected* by a spongy dissepiment.

** *Seeds crested.*

5. CHELIDONIUM. Pet. 4. Stam. numerous. Stigmas 2. Caps. elongated, 2-valved, 1-celled, placentas distinct.

1. PAPAVER *Linn.*

† 1. *P. Argemone* (L.); filaments dilated upwards, *caps. clavate* hispid with erect setæ, stem leafy many-flowered, l. bipinnatifid.—*E. B.* 643. *R.* 4475.—Fl. small. Pet. pale scarlet, black at the base.—In corn-fields, rather rare. A. VI. VII.

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2. *P. hybridum* (L.); filaments dilated upwards, *caps. ovate hispid* with patent setæ, stem leafy many-flowered, l. bipinnatifid.—*E. B.* 43. *R.* 4476.—Fl. small. Pet. deep scarlet.—Sandy fields, rare. A. VI. VII. E. I.

3. *P. Rhœas* (L.); *filaments subulate, caps. nearly globular smooth,* margin of the stigma with incumbent lobes, stem hispid many-flowered, l. pinnatifid cut.—*E. B.* 645. *R.* 4479.—Fl. large. Pet. deep scarlet, often nearly black at the base. Peduncles with spreading hairs, or (β. *strigosum* Boenningh.) with adpressed hairs.—In corn-fields, common. A. VI. VII. *Common red Poppy.*

4. *P. dubium* (L.); filaments subulate, *caps. clavate smooth,* margin of the stigma with distinct crenatures, stem hispid many-flowered, l. pinnatifid.—*E. B.* 644. *R.* 4477.—Fl. large. Pet. light scarlet. Peduncles with adpressed hairs.—Corn-fields, common. A. VI. VII.

† 5. *P. somniferum* (L.); *filaments dilated* upwards, caps. truly globular *smooth* as well as the calyx and stem, l. oblong unequally toothed amplexicaule.—*E. B.* 2145. *R.* 4481.—Fl. large. Pet. bluish white with a violet spot at the base. Whole herb smooth, except sometimes a few rigid spreading bristly hairs upon the flower-stalk and a bristle tipping many of the teeth of the leaves, in which case it probably is the *P. setigerum* DC.—On sandy ground near the sea and in the fens. A. VII.

2. Meconopsis *Vig.*

1. *M. cambrica* (Vig.); caps. smooth, l. stalked.—*E. B.* 66.—Caps. oblong, beaked. Stem many-flowered, about 1 foot high. L. pinnate, cut, glaucous beneath. Fl. large, orange-yellow, on long stalks.—Rocky shady places, rare. P. VI.

3. Roemeria *DeCand.*

† *R. hybrida* (DC.); pod 3-valved erect with a few rigid hairs at its extremity.—*E. B.* 201.—Pod 2—3 in. long. L. twice or thrice pinnatifid with linear nearly smooth bristle-pointed segments. St. about 1 foot high, usually slightly hairy. Fl. violet-blue. Pet. falling off befofe noon.—Chalky corn-fields in Cambridgeshire and Norfolk. A. VI. E.

4. Glaucium *Tourn.*

1. *G. luteum* (Scop.); st. smooth, stem l. amplexicaule sinuate, pod minutely tubercular-scabrous.—*E. B.* 8.—Glaucous. St. 1—3 feet high, glabrous or slightly hairy. Root l. stalked, lyrate, lobed and cut, hairy. Fl. large, golden yellow. Pods 6—12 in. long, curved, glabrous.—Sandy sea-shores. B. VI.—VIII. *Yellow Horned Poppy.*

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[2. *G. phœniceum* (Crantz); st. pilose, stem l. pinnatifid cut, *pod hispid.*—*E. B.* 1433.—Fl. scarlet with a black spot at the base.—Said to have been found in Norfolk. A. VI. VII.] E.

5. CHELIDONIUM *Linn.*

1. *C. majus* (L.); peduncles umbellate, l. deeply pinnatifid: segments rounded and bluntly lobed.—*E. B.* 1581.—Fl. yellow, small. Pod long. St. 1—2 feet high. All parts full of an orange juice. (—*β. laciniatum*; segments of the leaves deeply pinnatifid: lobes inciso-serrate. *C. laciniatum* DC.)—Waste places and old walls. *β*, a very doubtful native. P. V.—VIII.

Order V. FUMARIACEÆ.

Sep. 2. Cor. irregular, of 4 parallel petals, one or both of the two outer saccate at the base. Stam. 6, in 2 bundles opposite to the outer petals: lateral stam. in each bundle 1-celled. Ovary free, 1-celled. Style filiform. Stigma with 2 or more points.

1. CORYDALIS. Cal. of 2 sepals or wanting. Pet. 4, the upper one spurred at the base. Stam. diadelphous. Pod 2-valved, many-seeded, compressed.

2. FUMARIA. Cal. of 2 sepals. Pet. 4, the upper one spurred at the base. Stam. diadelphous. Fruit indehiscent, 1-seeded.

1. CORYDALIS *DeCand.*

*?1. *C. solida* (Hook.); root tuberous solid, l. biternate cut, lowest petiole a leafless scale, bracts palmate.—*E. B.* 1471.—Lobes of the l. obtuse. Fl. purplish. St. a span high.—A very doubtful native. P. IV. V. E. S.

*2. *C. lutea* (DC.); *root fibrous*, l. triternate, *bracts minute oblong* cuspidate, seeds shining granulate-rugose with a patent denticulated crest.—*E. B.* 588.—Leaflets obovate, trifid. Bracts shorter than the pedicels. Fl. yellow. St. about a foot high, brittle.—Naturalized on old walls. P. V.—VIII. *Yellow Fumitory.* E. S.

3. *C. claviculata* (DC.); root fibrous, *leaves pinnate*: pinnæ ternate, *footstalks ending in tendrils*, bracts oblong acuminate.—*E. B.* 103.—Leaflets entire, elliptical. Bracts rather longer than the pedicels. Fl. small, pale yellow or nearly white. St. slender, climbing, 1—4 feet long.—Bushy places in hilly districts. A. VI. VII. *White Climbing Fumitory.*

2. FUMARIA *Linn.*

1. *F. capreolata* (L.); sep. ovate acute toothed *as broad* as the cor. and half its length, fr. globose emarginate, bracts about

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¼ shorter than the fruitstalks.—*E. B.* 943. *R.* 4456. *Koch in St.* 62. 13.—Sep. sometimes entire. Fruitstalks patent or reflexed. Rarely the bracts are equal to, or longer than, the fruitstalks. Fl. cream-coloured, tipped with red. St. climbing by means of the twisting petioles.—Common. A. VI.—IX. *Rampant Fumitory.*—For an account of the species of this genus see *Trans. Bot. Soc. Edin.* i. 31.

2. *F. officinalis* (L.); *sep.* ovate-lanceolate acute toothed *narrower and ¼ shorter than the cor.* broader than the pedicel, fr. globose truncate slightly emarginate, bracts 2 or 3 times shorter than the fruitstalks.—*E. B.* 589. *R.* 4454. *Koch in St.* 62. 14. —Fl. rose-coloured. St. erect, much branched.—*β. scandens* (Reich.) has the sep. nearly half as long as the cor., st. diffuse climbing, l. broader.—Common. A. V.—IX. *Common Fumitory.*

3. *F. micrantha* (Lag.); *sep. orbicular* dentate *broader than and nearly half as long as the cor.*, fr. globose slightly pointed, bracts longer than the fruitstalks.—*Benth. in Hook. Icon. Pl. t.* 363. *F. calycina* Bab. *Trans. Bot. Soc. Edin.* i. 34.—Fl. pale purple, in dense spikes. L. in numerous linear segments. Stems much branched.—Edinburgh, Fife, Dover, Guildford. A. VI.—IX. E. S.

4. *F. parviflora* (Lam.); *sep. ovate* cut *as broad as and ¾ shorter than the cor.*, fr. globose pointed, bracts as long as the fruitstalks. —*E. B.* 590? *R.*! 4451. *Koch in St.* 62. 16.—I am but little acquainted with this species. Found at Woldham in Kent by Mr. J. Rayer. A. "VIII. IX." E.

5. *F. Vaillantii* (Lois.); *sep. narrower than the pedicels many times shorter than the cor., fr. globose* scarcely pointed, bracts about as long as the pedicels.—*R.* 4452. *Koch in St.* 62. 15.— Fl. white with a purple tip, or pale purple. St. slender, much branched, spreading. Leaflets in almost capillary segments.— ~~Common.~~ A. VI.—IX.

Order VI. CRUCIFERÆ.

Sep. 4. Cor. cruciform of 4 petals. Stam. 6: 4 longer in pairs opposite the anterior and posterior sepals and the stigmas, 2 shorter opposite the lateral petals. Ovary free, with parietal placentas meeting in the middle. Stigmas 2, opposite to the placentas (or rather, lobed and combining). Fruit a silique or silicle.

Suborder I. SILIQUOSÆ.

Pod linear or linear-lanceolate, opening by 2 valves.

Tribe I. *ARABIDEÆ.* Cotyledons accumbent parallel to the dissepiment, radicle lateral, seed compressed.

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1. MATTHIOLA. Pod round or compressed. Stigma 2-lobed: *lobes erect gibbous or horned at the back.*

2. CHEIRANTHUS. *Pod* compressed or 2-edged, *with an elevated longitudinal nerve upon each valve.* Stigma 2-lobed: *lobes patent.* Seeds in a single row in each cell.

3. NASTURTIUM. Pod nearly cylindrical, short: *valves convex, almost nerveless. Stigma capitate.* Seeds irregularly in 2 rows.—The short-podded species (*N. amphibium*) is scarcely distinguishable generically from *Armoracia.*

4. BARBAREA. Pod terete: *valves* convex *with a prominent* longitudinal *nerve.* Stigma capitate. Seeds in a single row.

5. TURRITIS. Pod compressed: valves slightly convex with a prominent longitudinal nerve. Stigma capitate. *Seeds in 2 rows.*

6. ARABIS. Pod compressed: valves nearly flat with a prominent longitudinal nerve, or rarely nerveless with numerous longitudinal veins. Stigma obtuse. *Seeds in a single row.*

7. CARDAMINE. Pod compressed: *valves flat, nerveless.* Stigma capitate. Seeds in a single row: funiculus simple, filiform.

8. DENTARIA. Pod lanceolate, compressed: valves flat, nerveless. Stigma capitate. Seeds in a single row: *funiculus dilated, winged.*

Tr. II. *SISYMBREÆ.* Cotyledons incumbent contrary to the dissepiment, radicle dorsal, seed compressed.

9. HESPERIS. Pod quadrangular or subcompressed: valves keeled, somewhat 3-nerved. Stigma of 2 closely converging erect elliptical obtuse lobes. Seeds in a single row.

10. SISYMBRIUM. Pod terete, or rarely tetragonal: valves convex, with 3 longitudinal nerves. *Stigma entire.* Seeds in a single row, smooth: funiculus filiform.—*S. thalianum* has its pod tetragonal with the valves angularly keeled and the lateral nerves very slender.

11. ALLIARIA. Pod terete: valves convex, with 3 longitudinal nerves, the middle one prominent and strong, the 2 lateral slender and branching. Stigma entire. *Seeds* in a single row, *striated*: *funiculus flattened, winged.*

12. ERYSIMUM. Pod tetragonal: *valves* prominently *keeled, with* 1 *longitudinal nerve.* Stigma obtuse, entire or slightly emarginate. Seeds in a single row: funiculus filiform.

Tr. III. *BRASSICEÆ.* Cotyledons conduplicate longitudinally folded in the middle: radicle dorsal, within the fold.

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13. BRASSICA. Pod terete: valves convex with one straight dorsal nerve, lateral nerves none or represented by a few anastomosing veins. Seeds globose, in a single row.

14. SINAPIS. Pod terete: *valves* convex *with* 3 *or* 5 *straight strong nerves*. Seeds globose, in a single row.

15. ERUCASTRUM. Pod terete: *valves* convex *with* 1 straight dorsal *nerve*. *Seeds oval or oblong*, in a single row.

16. DIPLOTAXIS. Pod compressed: valves subconvex with 1 straight nerve. *Seeds* oval or oblong, *in* 2 *rows*.

Suborder II. LATISEPTÆ.

Pouch short, opening with two valves: dissepiment in its broadest diameter.

Tr. IV. *ALYSSINEÆ*. Cotyledons accumbent.

17. ALYSSUM. Pouch roundish or oval, compressed. Seeds 2—4 in each cell. Filaments usually toothed. Hypogynous glands 4.

18. KONIGA. Pouch oval, compressed. Seeds 1—2 in each cell. *Filaments simple*. *Hypogynous glands* 8. Carpophorum 0.

19. DRABA. Pouch oval or oblong, slightly convex. *Seeds many* in each cell, not margined, in two rows. Filaments simple.

20. COCHLEARIA. Pouch globose: *valves very convex*, with a prominent dorsal nerve. Seeds numerous. Filaments simple.

21. ARMORACIA. Pouch globose: *valves* very convex, *without a nerve*. Seeds numerous. Filaments simple.

[Tr. V. *CAMELINEÆ*. Cotyledons incumbent.

22. CAMELINA. Pouch subovate: valves ventricose with a linear prolongation at the end which is confluent with the persistent style.]

[Tr. VI. *VELLEÆ*. Cotyledons conduplicate.

23. VELLA. Pouch ovate with a dilated winged leafy flat style longer than the convex valves.]

Suborder III. ANGUSTISEPTÆ.

Pouch short, laterally compressed, opening with 2 boatshaped valves keeled and winged on the back: dissepiment narrow, linear, or lanceolate.

Tr. VII. *THLASPIDEÆ*. Cotyledons accumbent.

24. THLASPI. Pouch roundish, notched: valves boatshaped,

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winged at the back. Seeds numerous. Pet. equal. Filaments simple.

25. HUTCHINSIA. *Pouch* elliptical, *entire*: *valves* boatshaped, keeled *not winged* at the back. *Seeds 2 in each cell.* Pet. equal. Filaments simple.

26. TEESDALIA. Pouch roundish notched: *valves* boatshaped, their back *keeled below narrowly winged above.* Seeds 2 in each cell. Pet. equal or 2 outer ones larger. *Filaments with a little scale at the base* of each within.

27. IBERIS. Pouch ovate or roundish, notched: valves boatshaped, winged at the back. *Seeds 1 in each cell. Pet. unequal,* 2 outer ones much larger. Filaments simple.

Tr. VIII. *LEPIDINEÆ.* Cotyledons incumbent.

28. LEPIDIUM. Pouch roundish or oblong, entire or notched: valves compressed, keeled or winged at the back. Seeds 1 in each cell. Filaments simple.

29. CAPSELLA. Pouch triangular-obcordate: *valves* compressed, *keeled but not winged.* Seeds numerous. Filaments simple.

Tr. IX. *SUBULARIEÆ.* Cotyledons incumbent, long, linear, the curvature taking place above their base. Cells many-seeded.

30. SUBULARIA. Pouch oval-oblong, laterally compressed: valves boatshaped.

Tr. X. *SENEBIEREÆ.* Cotyledons incumbent, long, linear the curvature taking place above their base. Cells one-seeded.

31. SENEBIERA. Pouch somewhat kidney-shaped, entire at the end, or notched above and below and almost 2-lobed, not bursting. Cells 1-seeded.

Suborder IV. NUCUMENTACEÆ.

Pouch scarcely dehiscent, often 1-celled owing to the absence of the dissepiment.

Tr. XI. *ISATIDEÆ.* Cotyledons incumbent, slightly channeled.

32. ISATIS. Pouch laterally compressed, 1-celled, 1-seeded: valves keeled, eventually separating.

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Suborder V. LOMENTACEÆ.

Pouch or pod dividing transversely in single-seeded cells, the true silique often barren, all the seeds being in the beak.

Tr. XII. *CAKILINEÆ*. Cotyledons accumbent.

33. CAKILE. Pouch angular, of two 1-seeded indehiscent joints, upper joint deciduous with an erect seed, lower persistent seedless or with a pendent seed.

Tr. XIII. *RAPHANEÆ*. Cotyledons conduplicate.

34. CRAMBE. Pouch 2-jointed, upper joint globose with 1 seed pendent from a long curved funiculus springing from the bottom of the cell, lower joint barren resembling a pedicel.

35. RAPHANUS. Pod linear or oblong, tapering upwards, smooth and indehiscent, or moniliform and dividing transversely into 1-seeded cells, lowermost cell barren imperfectly 2-valved resembling a pedicel.

Suborder I. *Siliquosæ*. Tribe I. *Arabideæ*.

1. MATTHIOLA *R. Br.*

1. ***M. incana*** (R. Br.); st. shrubby upright branched, l. lanceolate entire hoary, pods "cylindrical without glands."—*E. B.* 1935. *R.* 4354.—Fl. dull pale red.—Cliffs in the Isle of Wight. P. V. VI. *Hoary Stock.* E.

2. ***M. sinuata*** (R. Br.); st. herbaceous diffuse, l. oblong downy, *lower l. sinuated, pods* compressed *muricated* with glands. —*E. B.* 462. *R.* 4350.—Fl. purple.—Sandy sea-coasts of Wales, Cornwall and Jersey. B. VI.—VIII. *Sea Stock.* E. I.

2. CHEIRANTHUS *Linn.*

†1. ***C. Cheiri*** (L.); st. shrubby, l. lanceolate acute entire with bipartite adpressed hairs, pods tetragonal.—*E. B.* 1934. *R.* 4347.—Fl. yellow or tinged with red. A variety with very narrow petals is found upon the walls of the Abbey of Bury St. Edmonds.—Old walls. P. IV. V. *Common Wallflower.*

3. NASTURTIUM *R. Br.*

1. ***N. officinale*** (R. Br.); pods linear about as long as their pedicels, l. pinnate, leaflets ovate or oblong subcordate sinuate-dentate.—*E. B.* 855. *R.* 4359.—*Fl. white.* Pods patent. Very variable in size and in the form and size of its leaves. When growing out of water it is slender with small leaves and is *N. microphyllum* (R. 4360); when remarkably luxuriant, many

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feet in length, the stem often nearly an inch thick and the leaves very large and resembling those of a *Sium*, it is *N. siifolium* (*R.* 4361).—Brooks and ditches. P. VI. VII. *Water Cress.*

2. *N. amphibium* (R. Br.); pods elliptical much shorter than their pedicels, *l. oblong-lanceolate* attenuated at both ends sessile serrated or pinnatifid, pet. longer than the calyx.—*E. B.* 1840. *R.* 4363. *α. β. γ.*—*Fl. yellow.* Submersed l. pectinate-pinnatifid. Pod erecto-patent. Should not this plant be referred to *Armoracia*, as is done by Meyer? It differs from our other *Nasturtia* by its very short pods with remarkably convex valves; and that is the only character which separates *Armoracia* from *Nasturtium*. Its habit is that of *A. rusticana*. Watery places. P. VI.—VIII.

3. *N. anceps* (Reich.); *pods oblong half as long as their pedicels, lower l. lyrate,* upper l. pinnatifid: segments oblong-lanceolate toothed, pet. twice as long as the calyx.—*R.* 4364. *Reich. in St.* 45. 2.—Fl. yellow. Fruitstalks patent, pods ascending.—River-sides. Berwick upon Tweed, Worcester, Newcastle upon Tyne, &c. P. VII. VIII. E. S.

4. *N. sylvestre* (R. Br.); *pods linear as long as their pedicels,* all the *l. deeply pinnatifid*: segments oblong-lanceolate toothed, *pet. twice as long as the calyx.*—*E. B.* 2324. *R.* 4365, 4368.—Fl. yellow. Pods patent or ascending.—River-sides and wet places. P. VI.—VIII.

5. *N. terrestre* (R. Br.); *pods oblong turgid* as long as their pedicels, lower l. lyrate, upper l. deeply pinnatifid: segments oblong toothed, *pet. as long as the calyx.*—*E. B.* 1747. *R.* 4362. *N. palustre* DC.—Fl. yellow, small. Pods ascending, fruitstalks patent or even deflexed.—Wet places. P. VI.—IX.

4. Barbarea *R. Br.*

1. *B. vulgaris* (R. Br.); *lower l.* lyrate: *upper pair of lobes as broad as the* large roundish subcordate *terminal lobe,* uppermost l. undivided toothed, young pods obliquely erect, *seeds scarcely longer than broad.*—*E. B.* 443. *R.* 4356.—Pet. twice as long as the calyx. Flowering raceme close. Pods straight. Style about as long as the breadth of the ripe pod. Seeds large, angular, radicle pushed from its place so as to be nearly on the back of one of the cotyledons.—In damp places. B.? V.—VIII. *Yellow Rocket.*

2. *B. arcuata* (Reich.); *lower l.* lyrate: *upper pair of lobes as broad as the* large roundish subcordate *terminal lobe,* uppermost l. undivided toothed, young pods patent upon nearly horizontal pedicels, *seeds small oblong.*—*R.* 4357.—Pet. twice as long as the calyx. Flowering raceme lax. Pods curved when young. Style longer than the breadth of the ripe pod. Seeds not angular,

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scarcely half the size of those of *B. vulgaris*, radicle truly accumbent.—Llangollen, N. Wales. *Mr. Borrer.* B.? V.—VIII. E.

3. *B. stricta* (Andrzj.); *lower l.* lyrate: *upper pair of lobes* small much *narrower than the* large oblong-ovate *terminal lobe*, uppermost l. undivided toothed, pods adpressed, seeds about as long as broad.—*R.* 4355. *B. parviflora* Fries.—Pet. half as long again as the calyx. Flowering raceme close. Fl. much smaller than in the 2 preceding species. Pods straight. Style about as long as the breadth of the ripe pod. Seeds angular, like those of *B. vulgaris*. Lateral lobes of the lowermost l. very small, often obsolete.—Between Sheffield and Halifax and between Weedon and Blisworth, plentifully. *Mr. Borrer.* York. B.? V.—VIII. E.

4. *B. præcox* (R. Br.); lower l. lyrate: upper pair of lobes as broad as the roundish subcordate terminal lobe, *uppermost l. pinnatifid* with linear-oblong entire lobes.—*E. B.* 1129. *R.* 4358.—Fl. small, raceme close. Pods patent, straight. Seeds about as long as broad. Lower l. usually with numerous pairs of leaflets. Slenderer than either of the preceding but with larger pods.—Waste places in Devonshire. B. V.—VIII. *Early Winter Cress.*

5. TURRITIS *Linn.*

1. *T. glabra* (L.); radical l. toothed hairy, stem l. glabrous entire amplexicaule with a sagittate base, pods straight erect.—*E. B.* 777. *R.* 4346.—Plant very erect and straight. Fl. whitish-yellow.—Banks, particularly in Norf. and Suff. B. VI. VII. E.

6. ARABIS *Linn.*

1. *A. hirsuta* (R. Br.); l. hispid dentate, *stem l. cordate-amplexicaule*, pods erect narrow linear straight.—*E. B.* 587.—St. 1 foot high, clothed with spreading mostly simple hairs and numerous erect leaves. Sometimes the hairs on the stem are adpressed and branched. Root l. narrowed into a footstalk. Koch and Reichenbach divide this into two or more species which I have not been able to determine.—Walls and banks. B. VI.—VIII.

2. *A. ciliata* (R. Br.); *l. glabrous* ciliated somewhat toothed nearly sessile, *stem. l. sessile with a rounded base*, pods erect narrow linear straight.—*E. B.* 1746. *R.* 4338.—St. glabrous, erect. Seeds without wings.—Rocks by the sea, Cunnamara, I. Glen Esk, S. B. VII. VIII. S. I.

3. *A. stricta* (Huds.); *l. hispid* and ciliated with simple or forked bristles deeply *sinuate-dentate* narrowed into a footstalk, *stem l. sessile*, pods few distant erecto-patent straight.—*E. B.* 614. *R.* 4337.—St. erect, glabrous, hispid below, 6—8 in. high.

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Fl. rather large. "Seeds with a narrow margin and winged at the apex."—Limestone cliffs near Bristol. P. IV. V. E.

4. *A. petræa* (Lam.); *l. glabrous* or with forked hairs lyrate-pinnatifid or oblong-ovate nearly entire with long stalks, *stem l. narrow nearly entire stalked,* pods spreading slender straight.—*E. B.* 469. A. Crantziana *R.* 4323.—St. erect or decumbent, 3—8 in. long, *glabrous.* Fl. large, white tinged with purple. Seeds oblong with a narrow margin and slight wing at the end. —Alpine rocks in N. and S. Wales. P. VII. VIII. E. S.

*5. *A. Turrita* (L.); l. clothed with short forked hairs dentate elliptical narrowed into a stalk, *stem l. deeply cordate-amplexicaule* elongated, pods flat with a thickened margin recurved from an erect stalk, *seeds with a membranous margin.*—*E. B.* 178. *R.* 4345. —St. 1 foot high, erect, hairy. Fl. yellowish. Pods 3—4 in. long, without any central nerve but with numerous prominent longitudinal anastomosing veins.—On walls at Oxford, Cambridge, and Cleish Castle Kinrosshire. B. V. E. S.

7. CARDAMINE *Linn.*

1. *C. impatiens* (L.); *l. pinnate,* leaflets of the lower l. ovate 3-fid, of the upper l. oblong-lanceolate toothed or entire, *petioles of the stem l. with sagittate auricles,* pet. linear or wanting.—*E. B.* 80. *R.* 4302.—Pet. erect, white. Distinguished from the other British species by having auricles at the base of its petioles. —Hilly districts, preferring limestone. A. VII. VIII. E.

2. *C. sylvatica* (Link); l. pinnate, *leaflets of the lower l. roundish angled or toothed,* of the upper l. narrower, pet. twice as long as the calyx, pods erect upon patent pedicels, *style as long as the width of the pod.*—*R.* 4303. *St.* 45. 13. *C. flexuosa* With. —Fl. small. Pet. erect, white. *Stam.* 6. *St. flexuose,* more leafy than in *C. hirsuta.*—Common, especially in woody places. A. IV.—IX. E. S.

3. *C. hirsuta* (L.); l. pinnate, leaflets of the lower l. roundish angled or toothed, of the upper l. narrower, pet. twice as long as the calyx, pods and pedicels erect, *style shorter than the width of the pod.*—*R.* 4304. *St.* 45. 14.—Fl. small. Pet. erect white. *Stam.* 4. *St. nearly straight,* rather leafy.—Common in damp places. A. IV.—VIII.

4. *C. pratensis* (L.); l. pinnate, leaflets of the lower l. roundish slightly angled, *of the upper l. linear-lanceolate entire, pet.* 3 *times as long as the calyx* spreading, stam. half the length of the petals, st. terete.—*E. B.* 776. *R.* 4308.—Fl. large, lilac. Anth. yellow. Style short. Stigma capitate.—*β. dentata* (Koch); leaflets of the lower l. and those of the lower part of the stem acutely angular. *C. dentata* (Schult.) *R.* 4308. *β. Reich. in St.* 45. 15.—Moist meadows, common. *β.* near Cambridge. P. IV. *Common Bitter-cress.*

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5. *C. amara* (L.); l. pinnate, *leaflets* of the lower l. roundish-ovate, of the upper l. oblong, *all angular*, pet. 3 times as long as the calyx erect, *stam. nearly as long as the petals*, st. angular.—*E. B.* 1000. *R.* 4305.—Fl. large white. *Anthers purple.* Style long, slender. Stigma small. St. rooting below.—Moist meadows near streams, rare. P. V. VI.

[*C. bellidifolia* (L.) which has simple entire l. has been erroneously considered as a native of Britain. No station for it is known. *E. B.* 2355.]

8. DENTARIA *Linn.*

1. *D. bulbifera* (L.); st. simple, l. alternate, lower l. pinnate, upper l. simple, axils of the l. producing bulbs.—*E. B.* 309. *R.* 4318.—Rhizoma thick, creeping, with fleshy toothlike knobs. St. 1—1½ foot high. Leaflets lanceolate, serrated or entire. Fl. large, rose-coloured or purple.—Woods and shady places, rare. Tonbridge Wells, &c. P. V. VI. *Coralwort.* E.

Tribe II. *Sisymbreæ.*

9. HESPERIS *Linn.*

† 1. *H. matronalis* (L.); st. erect branched above, l. ovate-lanceolate acuminate toothed, pedicels about as long as the calyx, pet. obovate obtuse with an apiculus, pods erect from a patent pedicel terete torulose.—*E. B.* 731. *R.* 4378 and 4377 ?.—Fl. lilac, "fragrant," large and handsome. *H. inodora* does not appear to differ from the cultivated plant more than would be caused by difference of situation.—Hilly pastures, very rare. B. V. VI. *Dame's Violet.*

[*Malcolmia maritima* (R. Br.), which has a terete pod and a conical stigma of 2 connate acute lobes, is said to have been found wild, escaped from cultivation ?, in Kent.]

10. SISYMBRIUM *Linn.*

1. *S. officinale* (Scop.); *pods* subulate *adpressed to the stem* pubescent, l. runcinate-pinnatifid with 2 or 3 pairs of oblong dentate lobes and a large hastate terminal lobe.—*E. B.* 735. *R.* 4401.—St. 1—2 feet high with divaricated branches, upper part leafless. Fl. small, pale yellow. Pods on very short adpressed stalks, solitary.—Common. A. VI. VII. *Hedge Mustard.*

[*2. *S. polyceratium* (L.); *pods* subulate *spreading* sessile axillary *about* 3 *together*, l. lanceolate repando-dentate or subhastate.—*R.*4403.—St. leafy throughout, branched, "prostrate." Fl. small.—In the outskirts of Bury St. Edmonds but certainly an escape from cultivation. A. VII. VIII.] E.

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3. *S. Irio* (L.); *pods* terete 4 *times as long as their pedicels erecto-patent*, the young pods exceeding the fl., seeds oblong, l. runcinate-pinnatifid: lobes dentate oblong the terminal lobe angular, of the upper l. lanceolate with the terminal hastate.—*E. B.* 1631. *R.* 4408.—St. erect, branched, and as well as the l. glabrous. Fl. yellow. Pods narrow, linear. Pedicels slender.—In the neighbourhood of old towns, rare. A. VII. VIII. *London Rocket.*

4. *S. Sophia* (L.); pods terete 3 times as long as their pedicels erecto-patent, seeds oblong, *l. doubly or trebly pinnate*: segments linear or linear-lanceolate.—*E. B.* 963. *R.* 4405.—St. erect, branched, and as well as the l. slightly downy. Fl. yellow. Pods linear, narrow. Pedicels slender.—Waste places, not common. A. VI.—VIII. *Flixweed.*

5. *S. thalianum* (Gaud.); pods 4-angular linear ascending twice as long as their patent pedicels, seeds oblong not striated, *l. oblong-lanceolate undivided* toothed.—*E. B.* 901. Conringia thaliana *R.* 4380.—St. erect, slender, much branched, with few leaves which are nearly all radical. Fl. small, white. *Pods angular* on the back of the valves (tetragonous), not convex as in the other species (terete), nor with the lateral longitudinal nerves so strongly marked.—On walls and banks. A. IV. V. and IX. X.

11. ALLIARIA *Adans.*

1. *A. officinalis* (Andrzj.); l. heartshaped the lower ones reniform coarsely repando-crenate or sinuate-dentate all stalked, pods erecto-patent much longer than their stalks, seeds oblong subcylindrical striated.—*E. B.* 796. *R.* 4379. *Sisymbrium Alliaria* Koch.—St. erect, 1—2 feet high, slightly branched. L. large, thin, veined, smelling like garlic when bruised. Fl. white.—Hedgebanks. B. V. VI. *Jack-by-the-Hedge. Sauce-alone.*

12. ERYSIMUM *Linn.*

†1. *E. cheiranthoides* (L.); l. oblong-lanceolate slightly toothed with stellate-tripartite hairs, all narrowed into a slight footstalk, *pedicels* longer than the calyx, *2 or 3 times shorter than the pods*, pods patent ascending, seeds small numerous.—*E. B.* 942. *R.* 4383.—Seeds very small, so numerous in the pod as to be nearly 2-rowed. Fl. small. Pods always diverging from the stem.—A weed in cultivated ground. B. VI.—VIII. E. I.

†2. *E. virgatum* (Roth); l. linear-lanceolate entire with stellate 2- or 3-partite hairs, lower ones narrowed into a footstalk, upper l. mostly sessile, *pedicels* as long as the calyx *many times shorter than the pod*, pods erect, seeds large.—*DC. Icon. Rar.* 36. E. longisiliquosum *R.* 4389.—Seeds much larger than those of *E. cheiranthoides.* Pods near to and parallel to the stem as the

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seeds ripen. Fl. considerably larger than those of the preceding species.—A weed near Bath. B. VII. VIII. E.

†3. *E. orientale* (R. Br.); *l. elliptical heartshaped* obtuse clasping the stem, radical l. obovate, all smooth glaucous undivided entire.—*E. B.* 1804. Conringia orientalis *R.* 4382.—Fl. white or cream-coloured.—"Fields and cliffs near the sea." Dingle, Kerry. A. V.—VII. E. I.

Tribe III. *Brassiceæ.*

13. Brassica *Linn.*

1. *B. oleracea* (L.); l. glabrous glaucous waved and lobed, lower l. lyrate, *upper l. oblong sessile.*—*E. B.* 637. *R.* 4438.—L. thick and somewhat fleshy. Stam. all erect. Fl. large, cream-coloured. Raceme elongated before the fl. expand. The wild state of the garden Cabbage.—Cliffs by the sea. B. "V. VI." VIII. *Wild Cabbage.*

2. *B. campestris* (L.); *lower l.* lyrate dentate *somewhat hispid, upper l. ovate* acuminate *deeply cordate amplexicaule* glabrous. —*E. B.* 2234. *R.* 4434.—"Raceme close, the open fl. rising above the buds." Fl. yellow.—*β. Rapa*; root caulescent fleshy. *B. Rapa* Linn. *E. B.* 2176. *R.* 4437.—Borders of fields. A. or B. VI. VII. *Wild Navew. β. Turnip.*

3. *B. Napus* (L.); *lower l.* lyrate dentate *glabrous, upper l. oblong* somewhat *narrowed below with a dilated cordate* semi-amplexicaule *base.*—*E. B.* 2146. *R.* 4435.—"Raceme elongated at the time when the fl. expand. Shorter stam. patent, ascending." Fl. yellow. It is difficult to find any character by which to distinguish this plant from the preceding.—Borders of fields. A. or B. V. VI. *Rape, or Coleseed.*

4. *B. nigra* (Koch); *l. all stalked,* lower l. lyrate toothed: the terminal lobe large and lobed, upper l. lanceolate entire, calyx spreading horizontally, *pods adpressed to the stem.*—Sinapis *E. B.* 969. *R.* 4427.—Pods quadrangular. Fl. yellow. Lower l. large, rough.—Hedgebanks and waste places. A. VI.—VIII. *Black Mustard.*

14. Sinapis *Linn.*

1. *S. arvensis* (L.); *pods* subcylindrical knotty *longer than the conical 2-edged* seedless *beak,* "valves 3-nerved," l. ovate the lowermost sublyrate stalked, upper l. sessile, calyx spreading horizontally.—*E. B.* 1748. *R.* 4425.—Fl. large, yellow. Whole plant scabrous. Pods glabrous or rough with deflexed bristles. Stem 1—1½ foot high.—Corn-fields. A. VI.—VIII. *Charlock.*

2 *S. alba* (L.); *pods* cylindrical knotty *shorter than the sword-shaped seedless beak,* "valves 5-nerved," l. lyrate pinnatifid irre-

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gularly lobed, *calyx spreading horizontally.*—*E. B.* 1677. *R.* 4424.—Fl. large, yellow. Pods hispid. St. 1—2 feet high.—Cultivated and waste land. A. VII. *White Mustard.*

3. *S. monensis* (Bab.); pods slightly tetragonous, valves 3-nerved, *beak* 1—3-*seeded, l. glabrous* stalked all deeply pinnatifid and mostly radical: lobes oblong unequally toothed in the upper l. linear, *calyx erect closed, st. glabrous.*—*E. B.* 962. Brassica *Hook.*—St. usually prostrate. Fl. yellow.—On the western coasts. B. or P.? VIII. E. S.

4. *S. Cheiranthus* (Koch); pods cylindrical, valves 3-nerved, beak 1—3-seeded, *l. hispid* stalked all deeply pinnatifid: lobes oval-oblong unequally toothed in the upper l. linear, calyx erect closed, *st. hispid below.*—*E. B. S.* 2821. *R.* 4432. 4433.—St. 1—3 feet high, erect, leafy. Fl. yellow.—St. Aubin's Bay, Jersey. B. or P. VI.—VIII. O.

15. Erucastrum *Schimper and Spenner.*

1. *E. incanum* (Koch); pods adpressed turgid with a short 1-seeded beak, l. lyrate hispid, stem l. linear-lanceolate, st. much branched.—*E. B. S.* 2843. *R.* 4423.—St. 1—3 feet high, branches divaricated with few very small leaves. Pods very short, glabrous or hairy, often scarcely longer than their glabrous beak.—Sandy places in Jersey and Alderney. B. VII. VIII. O.

16. Diplotaxis *DeCand.*

1. *D. tenuifolia* (DC.); *st. shrubby below branched glabrous* leafy, l. glaucous linear-lanceolate very acute sinuate-dentate or pinnatifid: segments linear remotely dentate, pet. roundish-ovate with a short claw.—*E. B.* 525. *R.* 4420.—*Sinapis* Hook.—Pedicels usually twice as long as the large yellow flowers. St. 1—1½ foot high. Plant fœtid.—Old walls. P. VII.—IX.—E. S.

2. *D. muralis* (DC.); *st. herbaceous simple hispid* and leafy at the base, l. almost glabrous ovate-lanceolate sinuate-dentate or pinnatifid, pet. roundish ovate with a short claw.—*E. B.* 1090. *R.* 4417. *Sinapis* Hook.—Pedicels as long as the flowers. L. often blunt, never very acute, all collected about the base of the stem. Branches all springing from the base.—Dry banks and old walls, rare. A. VIII. IX.

Suborder II. *Latiseptæ.* Tribe IV. *Alyssineæ.*

17. Alyssum *Linn.*

1. *A. calycinum* (L.); herbaceous hoary with starry pubescence, l. obovate-lanceolate attenuated below, pods orbicular stellato-pubescent, calyx persistent, filaments all toothless, shorter ones with 2 setaceous appendages at the base.—*E. B. S.* 2853. *R.* 4269.—Cells of the pod 2-seeded. Pet. yellow, becoming at length white.—"Certainly a native in several Scottish stations." Introduced (?) into Leicestershire. A. V. VI. E.? S.

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18. Koniga *Adans., R. Br.*

*1. *K. maritima* (R. Br); procumbent, hairs bipartite, l. linear-lanceolate acute, pods oval pointed glabrous.—*E. B.* 1729. *R.* 4266. *Lobularia* Koch. *Glyce* Lindl.—St. rather woody below. Fl. white, sweet-scented. Should the name *Koniga* be given up from its resemblance to *Koenigia*, this genus must be called *Lobularia* after Desvaux, not *Glyce* with Lindley.—Naturalized near the sea. P. VIII. IX.

19. Draba *Linn.*

1. *D. aizoides* (L.); Scape leafless glabrous, *l. linear rigid* acute *keeled glabrous* ciliated, stam. as long as the slightly notched petals, style elongated.—*E. B.* 1271. *R.* 4254.—Fl. bright yellow. L. fringed with rigid hairs, densely collected into cushion-like tufts.—On rocks and walls at Pennard Castle near Swansea. P. III. IV. E.

2. *D. rupestris* (R. Br.); scape leafless or with 1 or 2 leaves pubescent, *l. lanceolate plane stellately pubescent*, stam. shorter than the "undivided" petals, style short.—*E. B.* 1338. *R.* 4245. (pet. notched). *D. hirta* Sm.—Pouch oblong-oval, slightly hairy. St. very short, branched, each branch bearing a dense tuft of leaves and 1—3 short scapes. Fl. small. L. mostly entire.—Highland mountains, rare. P. VII. S.

3. *D. incana* (L.); *stem l. several*, l. lanceolate stellately pubescent toothed, pet. twice as long as the calyx entire, *pouch longer than its pedicel twisted*, style short slender.—*E. B.* 388. *R.* 4249.—Pouch glabrous, erect, lanceolate-oblong. St. 4—12 in. high, simple or branched. Fl. white.—Mountains. B. VI. VII.

4. *D. muralis* (R. Br.); *st. leafy* branched, l. ovate amplexicaule toothed hairy, pet. "entire," *pedicels spreading horizontally rather longer than the* glabrous *pouch.*—*E. B.* 912. *R.* 4235.—Pouch elliptical. St. 5—12 in. high. Fl. white. Pubescence branched. Root l. attenuated below.—Limestone mountains. A. IV. V.

5. *D. verna* (L.); *scape leafless* glabrous above, l. lanceolate acute attenuated below hairy, *pet. deeply cloven*, pouch oblong shorter than its pedicel.—*E. B.* 586. *R.* 4234.—Pouch compressed, acute or rounded at the end. Fl. white.—*β. inflata* (Hook.); pouch inflated.—Probably *D. spathulata* (Lang.) *Hoppe in St.* 65. 1. *D. præcox* Reich. 4233, in which the pouches when transversely cut present a nearly circular section.—Very common on walls, banks, &c. *β*; Ben Lawers. A. III.—V. *Common Whitlow-grass.*

20. Cochlearia *Linn.*

1. *C. officinalis* (L.); radical l. cordate-reniform stalked,

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stem l. sessile oblong sinuated semiamplexicaule, *pouch globose or ovate.*—*E. B.* 551. *R.* 4260.—Petioles long. Lower l. entire or sinuated.—β. *alpina*; pouch ovate, leaves much smaller. *C. groenlandica* (Sm.) *E. B.* 2403. *R.* 4259.—Sea-coast, mostly in muddy places. β. on the higher parts of mountains. B.? VI.—VIII. *Common Scurvy-grass.*

2. *C. danica* (L.); *l. all stalked*, radical l. cordate somewhat lobed, stem l. 3—5-lobed subdeltoid uppermost shortly stalked, *pouch roundish* elliptical.—*E. B.* 696. *R.* 4257.—Petioles of the root l. very long, gradually shortening as they become more distant from the root. In a Jersey plant the pouches are triangular-cordate.—Sea-coast. A. V.—VIII.

3. *C. anglica* (L.); *radical l.* stalked *ovate-oblong* entire, stem l. oblong entire or toothed mostly sessile the *upper ones amplexicaule, pouch oval-oblong* veined.—*E. B.* 552. *R.* 4258.——Pouch twice as large as that of *C. officinalis.* Lower l. rounded below or narrowed into a footstalk. Fl. large.—Sea-shores. A. V. *English Scurvy-grass.*

21. Armoracia *Fl. Wett.*

†1. *A. rusticana* (Fl. Wett.); radical l. oblong crenate-serrate on long stalks, stem l. elongate-lanceolate inciso-serrate or entire subsessile, pouch oval "4-seeded."—*Cochlearia Armoracia* (L.) *E. B.* 2323. *R.* 4262.—St. 2—3 feet high. Roots long and thick, running deep into the ground.—Scarcely wild in Britain, often found near to gardens. P. V. *Horse Radish.*

Tribe V. *Camelineæ.*

22. Camelina *Crantz.*

[1. *C. sativa* (Cr.); pouches pearshaped, intermediate stem l. lanceolate sagittate at the base entire or denticulate.—*E. B.* 1254. *R.* 4292.—Pouches large, on long stalks. Fl. small, yellow.—Introduced with the seed of Flax, but not even naturalized. A. VI. VII.]

[*C. dentata* (Pers.) *R.* 4294, has equal claims to be admitted into our list, although decidedly not a native plant. It is distinguished by its *sinuate-dentate or pinnatifid* l. attenuated below but still sagittate at the base; its seeds are stated to be twice as large as those of *C. sativa*, in company with which it occurs.]

Tribe VI. *Velleæ.*

23. Vella *Linn.*

[1. *V. annua* (L.); "l. doubly pinnatifid, pouches deflexed."—*E. B.* 1442.—Found in the time of Ray on Salisbury Plain, but has not since been noticed. A. VI.] E.

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Suborder III. *Angustiseptæ*. Tribe VII. *Thlaspideæ*.

24. Thlaspi *Linn.*

1. *T. arvense* (L.); fruitbearing raceme elongated, *pouches orbicular with a broad longitudinal wing*, seeds concentrically rugose and striated, stem l. oblong sagittate toothed.—*E. B.* 1659. *R.* 4181.—Cells above 6-seeded. Pouch very large with remarkably broad wings. St. often a foot high. *T. alliaceum* (L.) differs from this by having a narrower wing to the pouch and foveolate-reticulate seeds.—Fields and road-sides. A. V.—VII. *Penny Cress.*

2. *T. perfoliatum* (L.); fruitbearing raceme elongated, *pouches obcordate*, style included within the notch, seeds 3—4 in each cell smooth, *stem l. cordate*-oblong.—*E. B.* 2354. *R.* 4183.—About 6 in. high.—Limestone pastures in Oxfordshire and Gloucestershire. A. V. E.

3. *T. alpestre* (L.); fruitbearing racemes elongated, pouches triangular-obcordate, *style exserted*, seeds numerous, stem l. oblong-cordate.—*E. B.* 81.—Stam. as long as the petals. St. simple, several from the same root, 6—12 in. long.—Limestone mountain pastures. P. VI.—VIII. E. S.

25. Hutchinsia *R. Br.*

1. *H. petræa* (R. Br.); l. pinnate, st. branched leafy, pet. scarcely longer than the calyx, pouches obtuse at both ends.—*E. B.* 111. *R.* 4190.—A small plant, 2—4 in. high, with small flowers. Differs from *Teesdalia*, to which it is referred by Reichenbach, by wanting the scales at the base of the filaments; from the other species of *Hutchinsia* (Koch), *Noccæa* (R.), by its accumbent cotyledons.—Limestone rocks, rare. A. III.—V. E.

26. Teesdalia *R. Br.*

1. *T. nudicaulis* (R. Br.); petals unequal.—*E. B.* 327. *R.* 4189.—L. numerous, spreading on the ground, lyrate-pinnatifid, rarely orbicular-spathulate and entire. St. 2—4 in. high, sometimes bearing 1 or 2 small leaves. Stam. with remarkable scales within. Pouch emarginate.—Sandy and gravelly places. A. V. VI. E. S.

27. Iberis *Linn.*

1. *I. amara* (L.); herbaceous, l. lanceolate somewhat toothed, pouches racemose orbicular notched: lobes triangular porrect.—*E. B.* 52. *R.* 4197.—L. usually with 1—3 obtuse teeth on each side. St. often 1 foot high, diffuse, branched. Fl. at first corymbose, afterwards in lengthened clusters. Outer pet. radiant. Chalky fields. A. VII. *Bitter Candytuft.* E. S.

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Tribe VIII. *Lepidineæ.*

28. Lepidium *Linn.*

* *Pouch cordate with turgid valves, style filiform.*

*1. *L. Draba* (L.); l. oblong entire or toothed lower ones narrowed into a footstalk, stem l. sagittate and amplexicaule, style as long as the dissepiment.—*E. B. S.* 2683. *R.* 4211.—One foot or more in height, branched, producing a somewhat umbellate corymb of numerous small white flowers upon long pedicels.—Hedges in Kent, probably introduced with foreign seed. P. V. VI. E.

** *Pouch oval or somewhat orbicular winged notched, style manifest.*

2. *L. campestre* (R. Br.); l. downy toothed lower ones oblong narrowed into a footstalk, stem l. lanceolate sagittate and amplexicaule, *pouch* ovate *rough with minute scales* notched and rounded at the end, *style scarcely longer than the notch.*—*E. B.* 1385. *R.* 4214.—Scales on the pouch only minute globular blisters when fresh. St. upright, about a foot high, branched in the upper part. Smith mentions a variety with the l. nearly glabrous and one with a few hairs on the pouch.—Dry gravelly soil. A. VI.—VIII.

3. *L. Smithii* (Hook.); l. hairy toothed lower ones obcordate stalked, stem l. lanceolate-sagittate amplexicaule, *pouch* ovate *glabrous* notched and rounded at the end, *style twice as long as the notch.*—*L. hirtum* (Sm.). *E. B.* 1803.—Pouch sometimes with a few scales but never hairy as in the true *L. hirtum* (*R.* 4213.) which has the lobes of the pouch acute.—Hedge-banks. P. VII. VIII.

*** *Pouch oval or roundish notched, style scarcely any.*

4. *L. ruderale* (L.); lower l. pinnatifid, upper l. linear entire, pouch roundish-oval notched patent, fl. diandrous without petals.—*E. B.* 1595. *R.* 4215.—Pouch with a very narrow wing at the end. St. branched, often a foot high.—Waste places near the sea. A. V.

**** *Pouch oval or roundish scarcely notched wingless, style scarcely any.*

5. *L. latifolium* (L.); l. ovate-lanceolate serrate or entire undivided, pouch oval entire downy.—*E. B.* 182. *R.* 4219.—Fl. numerous, small, in compound leafy panicled clusters. St. 3 feet high, erect, branched. L. large, the lower ones upon long stalks, the upper nearly sessile and narrower.—In salt marshes and sandy places near the sea.—P. VII. VIII.

29. Capsella *Vent.*

1. *C. Bursa-pastoris* (DC.); radical l. lanceolate pinnatifid or

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undivided toothed, upper l. undivided, pouch triangular-obcordate. —*E. B.* 1485. *R.* 4229.—Varying greatly in the form and divisions of its leaves but easily known by its peculiar pouches.—A common weed. A. III.—X. *Shepherd's Purse.*

Tribe IX. *Subularieæ.*

30. SUBULARIA *Linn.*

1. *S. aquatica* (L.). The only species.—*E. B.* 732. *R.* 4232. *Hook. Lond.* 135.—Cotyledons only once folded, but they are in a continuous straight line with the radicle and then curved back upon themselves above their base, therefore incumbent not bicrures. Plant small, subaquatic. L. linear-subulate, radical. Root of numerous long white fibres. Fl. small, often perfected under water.—Margins of alpine lakes. P. VII. *Awl-wort.*

Tribe X. *Senebiereæ.*

31. SENEBIERA *DeCand.*

1. *S. Coronopus* (Poiret); *pouch undivided reniform* crested with little sharp points, style prominent, l. pinnatifid.—*E. B.* 1660. *R.* 4210. St. much branched, prostrate. Fl. small, white, in lateral clusters. Pouches large, in dense clusters. Cotyledons in this and the following species forming a slight angle with the radicle, then curved back upon themselves and afterwards their points parallel to the radicle; therefore the bend is above the base of the cotyledons, not at their base as is usual in *Cruciferæ.*—Waste ground, common. A. VI.—IX.

2. *S. didyma* (Pers.); *pouch notched of two wrinkled lobes,* style extremely short, l. pinnatifid.—*E. B.* 248. *R.* 4209.—St. spreading, prostrate, a foot or more in length. Fl. small white in long slender lax clusters.—Waste ground near the sea in the south and south-west. A. VII.—IX. E. I.

Suborder IV. *Nucumentaceæ.* Tribe XI. *Isatideæ.*

32. ISATIS *Linn.*

†1. *I. tinctoria* (L.); "radical leaves copiously crenate, those of the stem entire, pouch abrupt smooth thrice as long as broad." —*E. B.* 97. *R.* 4177.—"In cultivated fields in the east of England, but rare. B. VII." *Dyer's Woad.*

Suborder V. *Lomentaceæ.* Tribe XII. *Cakilineæ.*

33. CAKILE *Gaert.*

1. *C. maritima* (Scop.); joints of the pouch 2-edged, the upper one with 2 teeth at the base, l. fleshy pinnatifid somewhat toothed.—*E. B.* 231. *R.* 4158.—Fl. purplish. Pouches an inch

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long, erect, with 4 sharp angles, swordshaped in the upper part. —Sandy sea-shores. A. VI. VII. *Purple Sea-Rocket.*

Tribe XIII. *Raphaneæ.*

34. Crambe *Linn.*

1. *C. maritima* (L.); longer filaments forked at the end, pouch without a style, l. roundish sinuated wavy toothed glaucous and as well as the st. glabrous.—*E. B.* 924. *R.* 4164.—Root thick, fleshy. St. 2 feet high. Fl. white.—Sandy sea-shores. P. VI. *Sea-kale.*

35. Raphanus *Linn.*

1. *R. Raphanistrum* (L.); pods moniliform striated of one cell shorter than the very long beak, *l. simply lyrate.*—*E. B.* 856. *R.* 4172.—Lobes of the leaves quite distinct.—Corn-fields. A. VI. VII. *Jointed Charlock.*

2. *R. maritimus* (Sm.); pods moniliform striated of one cell, beak shorter, *radical l. interruptedly* pinnate.—*E. B.* 1643. *R.* 4174.—Lobes of the l. usually so close as to overlap each other. —Sea-coasts, rare. B. ? VI.—VIII. *Sea Radish.*

The fruit of *Raphanus, Cakile,* and *Crambe* consists of a very small 2-celled pedicelliform usually sterile pod with a long moniliform beak bearing the seeds and dividing transversely into as many indehiscent cells as there are seeds. See *Prim. Fl. Sarn.* 10. This is the true structure of the Siliqua lomentacea.

Order VII. RESEDACEÆ.

Sep. 4 or 5 or 6, persistent. Cor. irregular, pet. 4—6 lacerated. Stam. 10—24, filaments variously united, inserted on a glandular irregular 1-sided disk. Ovary 3-lobed, 1-celled, with 3 parietal placentas. Fruit opening early at the end. Embryo curved.

1. Reseda. Cal. many-parted. Pet. entire or variously cut, unequal. Stam. numerous. Caps. of one cell opening at the top. Styles 3—6.

1. Reseda *Linn.*

1. *R. lutea* (L.); sep. 6 linear, *pet.* 6 *very unequal* as long as the sepals, *l.* 3-*cleft or pinnatifid.*—*E. B.* 321. *R.* 4446.—L. very variable. Two upper pet. with 2 winglike lobes, lateral pet. with a single wing, lower ones nearly entire. Fl. yellow. Caps. oblong, wrinkled. St. 2 feet high, branched, smooth.—Waste places in chalky and limestone districts. B. VI.—VIII. *Wild Mignonette.*

†2. *R. fruticulosa* (L.); sep. 5 linear-lanceolate, *pet.* 5 *nearly equal* 3-fid longer than the calyx, *l. all pinnatifid*: segments

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linear acute sometimes wavy.—*E. B. S.* 2628. *R.* 4449.—Fl. white. Caps. oblong, wrinkled. St. 1½—2 feet high, rather shrubby below. This plant is sometimes found with 6 sep. and pet. when it appears to be *R. alba* (L.).—Waste sandy places near the sea, rare. B. or P. VII. VIII.

3. *R. Luteola* (L.); sep. 4, pet. 4 or 5 very unequal longer than the calyx, *l.* elongate-lanceolate *undivided.*—*E. B.* 320. *R.* 4442.—Pet. usually 4, upper one 3-, 4- or 5-cleft, 2 lateral 3-cleft: segments linear, lower one (or 2) linear entire. Caps. broad, depressed. St. 2 feet high.—Waste places, particularly on chalk or limestone. B. VII. VIII.

Order VIII. CISTINEÆ.

Sep. 5, two outer smaller sometimes wanting, 3 inner with a twisted æstivation. Pet. 5, corrugated and twisted in æstivation the contrary way to the sepals. Stam. numerous. Ovary 1- or many-celled. Style and stigma simple. Fruit capsular, with 3, 5 or 10 valves. Embryo spiral or curved, in the midst of the albumen.

1. HELIANTHEMUM. Cal. of 5 sepals, the 2 exterior smaller or wanting. Pet. 5, deciduous. Stam. numerous. Caps. with 3 valves.

1. HELIANTHEMUM *Gaert.*

1. *H. guttatum* (Mill.); erect herbaceous, l. oblong-lanceolate or linear, lower l. opposite without stipules, upper alternate with or without them, *racemes without bracts, stigma subsessile.*—*E. B.* 544. *R.* 4526.—Pet. entire or notched at the end. Upper l. usually with small stipules. Fruitstalks patent. Pubescence of long simple hairs intermixed with short stellate ones. Fl. yellow, usually with a deep red spot at the base of each petal. "Anth. not emarginate at the apex."—Very rare. Holy-head Mountain and Jersey. A. VI.—VIII. E.

2. *H. canum* (Dun.); *shrubby, without stipules,* l. opposite ovate or oblong stalked flat hoary beneath, *racemes* terminal bracteated, "style twisted at the base reflexed, at the apex inflexed."—*Cistus marifolius* (Sm.) *E. B.* 396. *C. anglicus* and *C. canus* L.—Fl. yellow, small. St. decumbent. L. hoary beneath, hairy above. "Anth. emarginate at both ends. Style longer than the stigma." See Arnott in *Edin. Journ. Nat. Geog. Sc.* i. 377.—On alpine limestone, rare. P. V.—VII. E.

†3. *H. ledifolium* (Willd.); *herbaceous, with stipules,* downy, l. lanceolate opposite the upper ones alternate nearly sessile pubescent, *peduncles solitary* opposite to the leaves shorter than the calyx, *styles straight.*—*E. B.* 2414.—I am only acquainted with this plant from the figure and descriptions, it appears to be more correctly *C. niloticus* than *C. ledifolium* of Linn., but the two

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plants are only varieties of one species.—Brent Downs, Somerset, not found for many years. A. VI. VII. E.

4. *H. vulgare* (Gaert.); procumbent, *shrubby, with stipules,* l. oval or linear-oblong opposite nearly flat green above hoary beneath, *racemes bracteated, style* longer than the ovarium *bent at the base,* inner sep. obtuse apiculate.—*Cistus Helianthemum* (L.) *E. B.* 1321. *R.* 4547. 4548.—Fruitstalks contorted and deflexed. Varying much in the size and shape of its leaves and the amount of hoariness and pubescence. *Fl. yellow.*—*C. tomentosus* E. B. 2208. does not appear to differ in any essential point from this plant. I have never seen the "stipules hoary."—*C. surrejanus* E. B. 2207. appears to be another variety with narrow lanceolate petals. A specimen before me from Mr. Dickson (garden?) agrees exactly with that figure and has much larger leaves, which are scarcely at all hoary beneath, than those of the plant found by my friend the late Mr. W. Christy.—Common on dry hilly places. P. VII.—IX. *Common Rock-rose.*

5. *H. polifolium* (Arnott); hoary with stellate pubescence, shrubby, procumbent, with stipules, *l.* opposite ovate-oblong or oblong-linear more or less revolute *hoary on both sides,* racemes bracteated, style bent at the base longer than the germen, inner sep. obtuse.—*E. B.* 1322. *H. apenninum* DC.—*Fl. white.* Distinguished from the *H. polifolium* (DC.) by the hoary upper surfaces of the leaves and stellate pubescence.—Very rare. Brean Downs, Som.; and Torquay, Devon. P. VII. VIII. E.

Order IX. VIOLACEÆ.

Sep. 5, imbricate. Pet. 5, regular or irregular. Stam. 5, filaments dilated, connective elongated beyond the anthers into a flat membrane. Ovary 1-celled with 3 parietal placentas. Style with a hooded stigma. Caps. with 3 valves. Embryo straight, in fleshy albumen.

1. VIOLA. Sep. 5, extended at the base. Pet. 5, unequal, the lower one produced into a hollow spur behind. Stam. 5. Anth. combined into a cylinder, 2 lower ones spurred behind.

1. VIOLA *Linn.*

* *Stemless or nearly so.*

1. *V. palustris* (L.); *anth.-cells nearly parallel, anth.-spurs short thick rounded,* spur of the cor. very short obtuse, *l. reniform-cordate* glabrous.—*E. B.* 444. *R.* 4491.—Antherine spur concave below, convex above; anth.-cells slightly separated below. Fl. pale lilac with purple streaks. Sometimes the petioles are slightly hairy but usually glabrous.—In *V. uliginosa* (Schr.) which is closely allied to this the anth.-spur is longer, much less curved and more narrowed at the end.—Bogs in mountainous districts. P. IV.—VI. *Marsh Violet.*

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2. *V. odorata* (L.); *anth.-cells diverging below, anth.- spurs lancet-shaped* decurved blunt, spur of the cor. obtuse straight, lateral pet. entire lower one emarginate, l. cordate, *scions creeping*.—*E. B.* 619. *R.* 4498.—Anth.-spurs narrowed to an obtuse point. Spurs of the pet. inflated towards the end, slightly channeled above. Fl. purple, often white, sweet-scented. Bracts above the middle of the flowerstalk. Petioles with deflexed hairs. Lateral pet. with a hairy line which is sometimes wanting when the plant becomes *V. imberbis* Leight.—Common. P. III. IV. *Sweet Violet.*

3. *V. hirta* (L.); *anth.-cells diverging below, anth.-spurs nearly linear* obtuse, spur of the cor. obtuse hooked at the end, pet. entire or slightly emarginate, l. cordate, *scions wanting*.—*E. B.* 894. *R.* 4493.—Sep. obtuse. Anth.-spurs scarcely broader at the base than at the apex. Spur of the petals compressed, not channeled. Fl. pale blue, sometimes white, scentless. Lateral pet. usually with a hairy line. Bracts below the middle of the flower-stalk. Petioles with spreading hairs.—*β. calcarea* (Bab.); fl. smaller, peduncles much longer than the leaves, sep. oblong-ovate obtuse.—Common on limestone. *β.* Gogmagog Hills, Cambridge. P. IV. V. *Hairy Violet.*

** *With an evident stem.*

4. *V. canina* (L.); *anth.-cells parallel, anth.-spurs lancetshaped* acute, spur of the cor. obtuse, l. cordate-ovate or -oblong, *stip.*[1] *lanceolate* entire ciliate or dentate, st. ascending.—*E. B.* 620.—Spurs of the pet. inflated in their lower half, slightly channeled above. Fl. blue or rarely white, scentless. L. acute not acuminate. Stip. usually oblong-lanceolate. Fruit truncate-obtuse and apiculate.—*β. sylvatica*; l. cordate-ovate or subreniform acuminate, stip. lanceolate-attenuate, fr. acuminate.—*γ. pusilla*; l. roundish-cordate rather acute small, fl. large, base of the stems woody. *V. flavicornis* (Sm.) *E. B. S.* 2736.—*δ. montana*; similar to *γ* but with the l. cordate-oblong. *V. montana* Linn.—*ε. Ruppii*; l. cordate-ovate subattenuated above and slightly narrowed into the petiole, stip. large incised, base of the stem woody.—*ζ. lactea*; l. ovate-lanceolate narrowed into the petiole the lowermost cordate, stip. large incised, fl. cream-coloured. *V. lactea* (Sm.) *E. B.* 445.—Notwithstanding the great difference that exists between the extreme states of this plant I cannot but agree with *Bertoloni* (Fl. Ital. 2. 705.) in considering them as only varieties of one species.—Common. P. IV. V. *Dog Violet.*

5. *V. lutea* (Huds.); *anth.-cells nearly parallel, anth.-spurs elongated filiform,* spur of the cor. as long or longer than the ca-

[1] The stipules on about the middle of the stem should always be examined in determining the species of *Viola*, the others are variable in form.—See Ann. Nat. Hist. x. 100.—Trans. Bot. Soc. Edin. i. 75.

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lycine appendages, sep. acute, l. crenate-serrate lower ones ovate-cordate, upper l. ovate or lanceolate, *stip. palmate-pinnatifid*: *terminal lobe* linear or linear-lanceolate *entire*, st. ascending.—*E. B.* 721. *R.* 4519.—Fl. wholly yellow, yellow with the 2 upper petals purple or wholly purple, varying greatly in size. Caps. globose. All the lobes of the stip. of nearly equal size, lateral ones (usually 3 on one side and 1 on the other) all springing from near the base of the stip., the terminal lobe narrow and always quite entire but sometimes considerably larger than the others.—*β. Curtisii*; stems angular rough, lower part of the stip. somewhat elongated so as slightly to separate the lateral lobes. V. Curtisii *E. B. S.* 2693.—Mountainous pastures. *β.* Sands near the sea. P. VI. VII.

6. *V. tricolor* (L.); *anth.-cells diverging below, anth.-spurs* elongate *subclavate-filiform*, spur of the corolla about equalling the calycine appendages, l. crenate-serrate lower ones ovate-cordate, upper l. ovate or ovate-lanceolate, *stip. lyrate-pinnatifid*: *terminal lobe* spathulate *crenate*, st. ascending.—*E. B.* 1287. *R.* 4517.—Fl. with the upper pet. purple, lateral ones bluish, lower one yellow. Caps. ovate. I have never found the terminal lobe of the stip. quite entire, although it often has only one tooth on each side.—*β. arvensis*; pet. shorter than the calyx whitish, caps. nearly globular. V. arvensis *E. B. S.* 2712.—Common. A. V.—IX. *Heartsease, Pansy.*

Order X. DROSERACEÆ.

Sep. 5, imbricate. Pet. 5, regular. Stam. 5 or 10, free. Styles 3 or 5. Ovary free. Caps. 3—5-valved. Seeds without an arillus. Embryo straight, in fleshy albumen.—L. with a circinate vernation.

1. DROSERA. Cal. deeply 5-cleft. Pet. 5. Stam. 5. Styles 3—5, deeply bifid. Caps. 1-celled with 3—5 valves, many-seeded.

2. PARNASSIA. Cal. deeply 5-cleft. Pet. 5. Stam. 5, with 5 scales fringed with glandular setæ interposed. Stigmas 4, sessile. Caps. 1-celled, with 4 valves.—Differs from this Order by wanting the circinate vernation of *Drosera*, and referred by Lindley to *Saxifrageæ* and by Don to *Hypericineæ*.

1. DROSERA *Linn.*

1. *D. rotundifolia* (L.); l. orbicular spreading, petioles hairy, peduncles erect, seeds with a loose chaffy coat.—*E. B.* 867. *R.* 4522.—Flowering stalks 2—6 in. high. L. beautifully covered, as in all our species, with hairs terminating in large glands secreting a viscid fluid which retains insects that settle upon them.—Common in boggy places. P. VII. VIII. *Round-leaved Sundew.*

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2. *D. longifolia* (L.); l. spathulate obtuse erect, petioles glabrous, peduncles arcuate or decumbent at the base, seeds with a close rough not chaffy coat.—*E. B.* 868. D. intermedia *R.* 4523., *Koch, Fries.*—A variety of this plant with shorter leaves and the flowering stalks shorter than the leaves is found in Ireland.—Common in boggy places. P. VII. VIII. *Longer-leaved Sundew.*

3. *D. anglica* (Huds.); l. obovate-lanceolate obtuse erect, petioles glabrous, peduncles erect, seeds with a loose chaffy coat.—*E. B.* 869. D. longifolia *R.* 4524., *Koch, Fries.*—Much larger and taller than the last. A variety is common in Scotland with broader leaves and the styles often, though not always, emarginate. It is *D. obovata* (M. and K.) *R.* 4525.—In bogs, rather rare, common in Ireland. P. VII. VIII.

2. PARNASSIA *Linn*

1. *P. palustris* (L.); filaments of the petaloid scales 9—13, pet. with a short claw, radical l. cordate stalked, stem l. amplexicaule.—*E. B.* 82. *R.* 4520.—Pet. white, veined. Glands of the scales yellow. L. mostly radical.—Wet and boggy places, particularly in the north. P. VIII.—X.

Order XI. POLYGALEÆ.

Pet. 5, imbricate, irregular, 2 interior much larger petal-like. Pet. unequal, usually 3, 1 anterior and larger than the rest. Stam. monadelphous, separating above into 2 equal opposite bundles. Anth. 1-celled, opening by a pore at their apex. Caps. 1—3-celled, with placentas in the axis. Seeds pendulous, usually with an arillus at the base.

1. POLYGALA. Sep. 5, persistent, 2 inner broader and often petaloid. Cor. irregular. Pet. 3—5, connected together, the lower one keelshaped. Caps. compressed, of 2 cells and 2 valves. Seeds solitary, with a 4-pointed basal arillus.

1. POLYGALA *Linn.*

1. *P. vulgaris* (L.); *lower l. smaller* oblong, upper l. linear-lanceolate, fl. crested, *wings of the cal. obovate mucronate*: the lateral nerves branched and anastomosing with an oblique branch of the central nerve, caps. orbicular-oblong-obcordate sessile, lateral bracts shorter than the pedicels.—*E. B.* 76.—All the nerves of the wings branched (the middle one least) and anastomosing, the lateral ones not reaching to the extremity of the wing but joining a branch of the central one, never (I believe) the central one itself. Fl. blue, pink or white.—*P. oxyptera* (Reich.) *E. B. S.* 2827. is only a variety with narrower calyx-wings and secund fl. and fruit. Fries lays great stress upon the latter as a specific character.—A plant from Ben Bulben, Sligo, which is

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probably distinct, has the lower leaves oblong, upper lanceolate, wings of the cal. elliptical apiculate, their *lateral nerves* mostly *rejoining the central nerve near the apex* and with numerous anastomosing branches externally, central nerve usually quite simple. L. much larger and fl. deep blue.—Dry pastures. P. VI.—IX. *Milk-wort.*

2. *P. calcarea* (Schultz); *lower l. larger* obovate obtuse, upper l. lanceolate, fl. crested, *wings of the calyx oblong not mucronate: the lateral nerves distinct* from the central nerve *at the apex* all branched, caps. obcordate-orbicular sessile, lateral bracts shorter than the pedicels.—*P. amara* (Don) *E. B. S.* 2746.—The central as well as the lateral nerves of the wings branched, the branches sometimes slightly confluent but the lateral nerves never rejoining the central one although very rarely they anastomose with an oblique branch of it. Fl. blue.—Chalk hills of the south-east of England. P. V. E.

Order XII. TAMARISCINEÆ.

Cal. 5-parted, persistent, æstivation imbricate. Pet. 4—5, withering, regular, æstivation imbricate. Stam. equal or twice as many as the petals, distinct or monadelphous. Caps. 1-celled, 3-valved, many-seeded, loculicidal, placentas often only at the base. Seeds ascending, comose.

1. TAMARIX. Cal. 4—5-parted. Pet. 4—5. Stam. 4—5 or 8—10, inserted in a hypogynous ring. Styles 3, patent. Seeds affixed at the base of the capsule: coma or down of simple pappiform hairs arising from the apex.

1. TAMARIX *Linn.*

†1. *T. anglica* (Webb); l. glabrous somewhat narrowed at the base (spurred?), hypogynous ring 5 angled narrowed into the filaments of the cordate shortly apiculate anthers whose cells diverge below, caps. roundish trigonous at the base abruptly narrowed towards the apex.—T. gallica *E. B.* 1318.—St. shrubby, with slender leafy branches. L. minute with a loose spur at the base?. Spikes lateral, somewhat panicled, slender. Fl. small, pink.—In *T. gallica* the l. are broader at the base, the ring has 10 obtuse lobes with the filaments between them, the anther a much longer point and the caps. gradually narrowed from its base. See paper by Mr. P. B. Webb in *Hook. Journ. of Bot.* iii. 429. *tab.* 15.—South coasts of England, a very doubtful native. S. VII. *Tamarisk.* E.

Order XIII. FRANKENIACEÆ.

Sep. 4—5, in a furrowed tube below. Pet. 5, clawed, with appendages at the base of the limb. Stam. 5 or more, free,

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2-celled, opening by 2 terminal pores or longitudinally. Caps. 1-celled, 3-valved, septicidal, placentas 3, parietal. Style slender, simple or trifid. Seeds numerous, minute. Embryo in the midst of albumen.

1. FRANKENIA. Style 3-fid: lobes oblong with the stigma on their inner side. Caps. 1-celled, 3—4-valved, many-seeded.

1. FRANKENIA *Linn.*

1. *F. lævis* (L.); L. linear revolute at the margin glabrous ciliated at the base.—*E. B.* 205.—St. slightly downy. Cal. slightly hispid between its prominent angles. Fl. terminal or from the forks of the stem, sessile, rose-coloured. St. prostrate, branched, wiry. L. sometimes pulverulent.—Muddy salt marshes on the east coast. P. VIII. E.

2. *F. pulverulenta* (L.); l. obovate retuse glabrous above pulverulent beneath, petiole ciliated.—*E. B.* 2222.—St. similar to the last.—Found by Dillenius and Hudson on the Sussex coast, apparently now lost. A. VII. E.

Order XIV. ELATINEÆ.

Sep. 3—5, distinct or slightly connate. Pet. 3—5. Stam. equalling or twice as many as the pet., free. Caps. 3—5-celled, 3—5-valved, loculicidal, with central placentas. Styles 3—5, stigmas capitate. Seeds numerous, albumen 0, embryo curved with the seed.—L. without stipules, opposite.

1. ELATINE. Cal. 3—4-parted. Pet. 3—4. Stam. 3—4 or 6—8. Styles 3—4. Caps. 3—4-celled, many-seeded. Seeds cylindrical, terete, straight or bent.

1. ELATINE *Linn.*

1. *E. hexandra* (DC.); l. opposite longer than their petioles, fl. slightly stalked with 6 stam. and 3 obovate pet., caps. turbinate concave at the summit 3-celled, seeds nearly straight ascending 8—12 in each cell.—*R. Icon.* f. 599. E. Hydropiper *E. B.* 955. E. tripetala *Sm.*—Plant minute, procumbent. Fl. alternate, axillary. Cal. 3-fid.—Forming small matted tufts under water, rare. A. VIII.

2. *E. Hydropiper* (L.); l. opposite shorter than their petioles, fl. stalked or nearly sessile with 8 stam. and 4 ovate pet., caps. roundish depressed 4-celled, seeds bent almost double pendulous 4 in each cell.—*E. B. S.* 2670. *E. Schkuhriana* (Hayne) *Reich.*—Fl. quite sessile in our plant. Cal. 4-fid.—Very rare, growing under water. Llyn Coron, Anglesea. Newry and at the Lough Neagh outlet of the Lagan Canal, Ireland. A. VIII. E. I.

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Order XV. CARYOPHYLLEÆ.

Sep. 5 or 4, distinct or connected in a tube. Pet. 5 or 4, clawed. Stam. usually twice as many as, sometimes equalling, the petals, free or connected at the base. Anth. opening longitudinally. Ovary one, often stalked. Stigmas 2—5, sessile, filiform. Caps. 1- or imperfectly 2—5-celled, opening by twice as many teeth as stigmas, sometimes valvular. Placenta central. Embryo generally curved round mealy albumen.—L. without (rarely with) stipules, opposite.

Suborder I. SILENEÆ.

Sep. connected into a tube. Stam. connected below into a tube which is connate with the stalk (carpophore) of the ovary. Caps. stalked.

1. DIANTHUS. Cal. 5-toothed, with 2 or more imbricated opposite scales at the base (except in *D. prolifer*). Pet. 5, clawed. Stam. 10. Styles 2. Caps. 1-celled, many-seeded, opening at the top with 4 valves. Seeds peltate, convex above, concave beneath and more or less keeled.

2. SAPONARIA. *Cal.* 5-toothed, *naked at the base.* Pet. 5, clawed. Stam. 10. Styles 2. Caps. 1-celled, opening at the top with 4 valves. *Seeds globular or reniform.*

[3. CUCUBALUS. Cal. 5-toothed, naked. Pet. 5, clawed. Stam. 10. *Styles* 3. *Caps. a globose* 1-*celled berry*. Seeds reniform.]

4. SILENE. Cal. 5-toothed, naked. Pet. 5, clawed. Stam. 10. Styles 3. *Caps.* more or less completely 3-celled, *opening at the top with* 6 *valves.* Seeds reniform.

5. LYCHNIS. Cal. 5-toothed, naked. Pet. 5, clawed. Stam. 10. *Styles* 5. *Caps.* 1- *or half* 5-*celled, opening at the top with* 5 *or* 10 *teeth.*

Suborder II. ALSINEÆ.

Sep. distinct. Stam. free, inserted into a more or less evident hypogynous ring. Caps. sessile.

[6. BUFFONIA. Sep. 4. Pet. 4, entire. Stam. 4. Styles 2. Caps. flattened, 2-valved, 2-seeded.]

7. SAGINA. Sep. 4, spreading when in fruit. Pet. 4 or 0. Stam. 4. *Styles* 4. *Caps.* 4-*valved, many-seeded.*

8. SPERGULA. Sep. 5. Pet. 5, entire. Stam. 5—10. Styles 5. Caps. 5-valved. Seeds numerous, with a naked hilum.

9. HOLOSTEUM. Sep. 5. *Pet.* 5, *toothed at the end.* Stam. 5 or 3 or 4. Styles 3. Caps. subcylindrical, many-seeded, opening at the end with 6 teeth.

10. STELLARIA. Sep. 5. Pet. 5, bifid. *Stam.* 10. Styles 3. Caps. opening with 6 valves or teeth, many-seeded.

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11. MALACHIUM. Sep. 5. Pet. 5, bifid or entire. Stam. 10. *Styles* 5. *Caps. opening with* 5 *bifid valves.*

12. ARENARIA. Sep. 5. *Pet.* 5, *entire,* or slightly emarginate. Stam. 10. Styles 3. Caps. opening with 6 valves. Seeds numerous, with a naked hilum.

13. MOEHRINGIA. Sep. 5. Pet. 4—5, entire or slightly emarginate. Stam. 8 or 10. Styles 2—3. Caps. opening with 4 or 6 valves. *Seeds* numerous, *with an appendage at the hilum.*

14. ALSINE. Sep. 5 or 4. Pet. 5 or 4, entire or slightly emarginate. Stam. 10. Styles 3. Caps. opening with 3 valves. *Seeds* numerous (or few *A. peploides*) *with a* naked hilum.

15. MOENCHIA. Sep. 4, erect. *Pet.* 4, *entire.* Stam. 4. Caps. many-seeded, opening at the end with 8 teeth.

16. CERASTIUM. Sep. 5. *Pet.* 5, *bifid.* Stam. 10 or 5 or 4. Styles 5 or 4. Caps. tubular, opening at the end with 10 teeth.

17. CHERLERIA. Sep. 5. Pet. 0 or 5. Stam. 10, outer ones opposite to the sepals springing from an oblong emarginate glandular base. Styles 3. Caps. 3-valved.

Suborder I. *Sileneæ.*

1. DIANTHUS *Linn.*

* *Fl. capitate or clustered.*

1. *D. prolifer* (L.); fl. in a clustered head, *involucral scales* membranous *pellucid* the 2 outer ones shorter mucronate, inner ones obtuse about as long as the calyx, st. glabrous, l. all linear, seeds boatshaped with a longitudinal membrane in the hollow rough pointed at one end.—*E. B.* 956. *R.* 5009.—St. 1—1½ foot high, erect, usually simple. Fl. expanding one at a time, small. Pet. rose-coloured, obcordate. Whole head quite inclosed by brown dry scales.—*D. diminutus* (L.) is only a dwarf 1-flowered state of this plant.—In sandy and gravelly places, rare. A. VII.

2. *D. Armeria* (L.); fl. aggregate tufted, *involucral scales and bracts lanceolate-subulate* downy *herbaceous* ribbed as long as the tube, st. downy, l. linear downy, seeds nearly flat one side slightly hollowed and with a longitudinal keel in its middle rough pointed at one end. *E. B.* 317. *R.* 5011.—St. 1—2 feet high, erect, branched. Pet. rose-coloured, speckled with white dots, crenate.—Waste places, rare. A. VII. VIII. *Deptford Pink.* E.

** *Fl. solitary or panicled.*

†3. *D. plumarius* (L.); st. 2—5-flowered, *fl. solitary,* in-

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volucral scales roundish-ovate shortly mucronate 4 times shorter than the tube, *l. rough at the margin* linear-subulate, *pet. digitate-multifid as far as the middle* with the central entire part obovate *downy*, barren st. procumbent rooting much branched, *seeds flat orbicular* with a point on one side.—*R.* 5030. *Leight. Shrop.* p. 188.—Flowering stems 6—12 in. high. Calyx teeth ciliated at the margin, slightly shorter than the capsule. Fl. pale pink, sometimes white, fragrant.—Old walls and ruins. P. VI. E.

†4. *D. Caryophyllus* (L.); fl. solitary, involucral scales broadly obovate pointed 4 times shorter than the tube, *l. with smooth margins* linear, *pet. crenate-dentate* ovate *glabrous*, barren st. elongated procumbent branching, seeds pyriform nearly flat.—*E. B.* 214. *R.* 5051.—Flowering stems 12—18 in. high. Calyx teeth not ciliated, longer than the capsule. Fl. pale pink, fragrant. Seeds half the size of those of the preceding.—Old walls and ruins, Kent, Norwich (?). P. VII. VIII. *Clove Pink.* E. S.

5. *D. cæsius* (Sm.); st. mostly single-flowered, involucral scales adpressed ovate obtuse shortly pointed 4 times shorter than the tube, *l. with rough margins* linear, *pet.* obovate *crenately-cut bearded*, barren stems elongated procumbent branching, seeds ovate pointed at one end.—*E. B.* 62. *R.* 5044.—Flowering stems 6—8 in. high. Calyx teeth ciliated. Fl. pale rose-colour, fragrant.—On limestone cliffs at Cheddar, Somerset. P. VI. VII. *Cheddar Pink.* E.

6. *D. deltoides* (L.); fl. solitary, *involucral scales* usually 2 ovate aristate ¼ *the length of the tube*, l. linear-lanceolate the lower ones obtuse rough at the edges and keel, *stem l.* acute *and* as well as the *st. pubescent-scabrous*, pet. obovate dentate, barren st. short procumbent simple (?), seeds obovate flat reticulate-rugose.—*E. B.* 61.—Flowering stems 6—12 in. high, branched. Calyx teeth lanceolate, minutely ciliated. Fl. rose-coloured, with a darker circle round the mouth, scentless.—*β. glaucus*; l. glaucous, involucral scales usually 4, fl. nearly white with a purple circle. *D. glaucus* Linn.—Hilly pastures. *β.* said to have been found in the King's Park, Edinburgh. P. VI.—IX. *Maiden Pink.*

2. Saponaria *Linn.*

†1. *S. officinalis* (L.); fl. fasciculate-corymbose, cal. cylindrical slightly downy, pet. retuse crowned, l. elliptic-lanceolate ribbed, st. erect.—*E. B.* 1060. *St.* 6. 10.—St. 1—2 feet high, stout, leafy. Fl. flesh-coloured or pale pink, large, handsome.—*β. hybrida* (L.); some of the upper l. combined and sheathing, pet. combined.—Roadsides and hedges, mostly near villages. *β.* Northamptonshire and Liverpool. P. VIII. *Soapwort.*

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3. Cucubalus *Linn.*

[1. *C. bacciferus* (L.) ; st. branched spreading, l. ovate acute, cal. campanulate, pet. distant.—*E. B.* 1577.—Remarkable for its fleshy fruit.—Isle of Dogs near London, scarcely native. P. VIII.] E.

4. Silene *Linn.*

1. *S. anglica* (L.) ; racemes terminal, fl. alternate, cal. hairy with setaceous teeth ovate when in fruit, pet. slightly cloven or entire obovate, l. lanceolate lower ones spathulate.—*E. B.* 1178. —St. 6—18 in. high, simple or branched. L. oblong, the lower l. obovate obtuse apiculate. Fl. white or tinged with red. Whole plant hairy and viscid.—*β. quinquevulnera* (Koch) ; fl. white with a large crimson spot upon the disk of each usually entire petal, whole plant hairy, st. nearly simple. *S. quinquevulnera* (L.) *E. B.* 86.—Sandy and gravelly fields. *β.* Duppas Hill, Surrey, and Wrotham, Kent. A. VI. VII. *English Catchfly.*

2. *S. nutans* (L.) ; pubescent, glandular-viscid above, *panicle* secund *with drooping* trichotomous *opposite* 3—7*-flowered branches, cal. ventricose* with acute teeth, pet. bifid crowned : segments linear, lower l. spathulate, stem l. sessile lanceolate, teeth of the caps. reflexed.—*E. B.* 465.—St. 1¼ foot high. Carpophore scarcely half as long as the capsule. Fl. white, most expanded and sweetest in the evening.—*β. paradoxa* (Sm.) ; l. broader.—On limestone and chalky places. *β.* Dover Cliffs. P. VI. VII. *Nottingham Catchfly.* E. S.

[3. *S. italica* (Pers.) ; pubescent, *panicle nearly erect* with opposite trichotomous viscid branches, *cal.* long *clavate* with obtuse teeth, pet. bifid not crowned : segments broad, lower l. lanceolate-spathulate, stem l. linear-lanceolate, teeth of the capsule reflexed (?).—*S. patens* (Peete) *E. B. S.* 2748. *R. Icon. t.* 292.—St. about 2 feet high. *Carpophore as long as the capsule.*—Dover Cliffs ?. A very doubtful native. See *Comp. Bot. Mag.* i. 327. P. VI. VII.] E.

4. *S. Otites* (Sm.) ; *panicle elongate* with opposite tufted *verticillate-racemose* branches, whorls many-flowered, peduncles glabrous, cal. faintly nerved smooth with obtuse teeth, *pet. linear undivided* not crowned, l. lanceolate-spathulate, stem l. small linear erect.—*E. B.* 85.—Fl. imperfectly dicœcious, small, yellowish. St. viscid at about their middle, 1 foot high,—Sandy and gravelly places in the east of England. P. VI. E.

5. *S. inflata* (Sm.) ; panicle terminal, fl. numerous drooping, *cal. inflated bladdery* reticulated with acute teeth, pet. deeply cloven scarcely ever crowned : segments narrow, l. elliptical-lanceolate, stem erect (young seeds white).—*E. B.* 164.—Glabrous, smooth. St. 2—3 feet high. Inflorescence between corymbose and panicled. Pet. white. Cal. often tinged with pur-

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ple, glabrous.—*β. hirsuta* (Leight.); st. and l. rough with hairs. "Cal. downy" *Hooker*.—Fields and roadsides. *β*, rarer. P. VI.—VIII. *Bladder Campion.*

6. *S. maritima* (With.); panicle terminal, *fl. few usually solitary erect*, cal. inflated bladdery reticulated with acute teeth, *pet.* slightly cloven *crowned*: *segments broad*, l. lanceolate or ovate-lanceolate, st. spreading decumbent (*young seeds purple*).—*E. B.* 957.—Sandy and stony sea-shores, also by alpine rills. P. VI.—VIII. *Sea Bladder Campion.*

7. *S. conica* (L.) *st. erect forked*, fl. from the forks or terminal, *cal. with* 30 *furrows* conical in fruit umbilicate below: teeth subulate acute, pet. obcordate crowned, l. linear-subulate downy, *caps. oblong-ovate.*—*E. B.* 922.—St. 3—12 in. high, simple or branched. Cal. of the flowers conical-tubular, rounded below, of the fruit very broad at the base. Carpophore very short. Fl. reddish.—In sandy fields, rare. A. V.—VII.

8. *S. noctiflora* (L.); st. erect repeatedly forked, fl. from the forks or terminal, *cal.* veined and *with* 10 hairy glandular *ribs* in fruit elliptic-oblong: teeth long subulate, pet. deeply bifid crowned, l. lanceolate lower ones obovate, *caps. ovate.*—*E. B.* 291. *St.* 3. 10.—L. much like those of *S. inflata* but longer. St. about 1 foot high, downy and glandular. Carpophore very short. Fl. reddish-white, rather large, sweet-scented in the evening, peduncles glandular.—Sandy and gravelly fields. A. VII. VIII.

[9. *S. Armeria* (L.); "panicles forked many-flowered level-topped, pet. cloven each with a double awlshaped scale, cal. and l. smooth, caps. not longer than its stalk." *Sm.*—*E. B.* 1398. *St.* 21. 4.—Formerly found half a mile below Chester on the banks of the Dee, now lost. A. VII.] E.

[*S. alpestris* (Jacq.); cal. topshaped short, st. dichotomous, fl. axillary and terminal, calyx-teeth ovate-obtuse, pet. crowned: limb with 4 teeth, caps. oblong twice as long as the calyx, seeds cristate-ciliate, l. lanceolate.—A specimen of this plant, gathered by the late Mr. G. Don "on a rock on a mountain to the east of Clova, Angus-shire," is in Mr. Borrer's Herbarium.]

10. *S. acaulis* (L.); *st. densely tufted* and much branched, *fl. solitary*, peduncles and cal. glabrous, cal. turbinate with 10 striæ: teeth ovate obtuse, pet. slightly notched crowned, l. linear ciliated below.—*E. B.* 1081. *R.* 5084.—Forming broad dense tufts 2—3 in. high. Fl. purple, upon longish solitary stalks, sometimes nearly sessile. Caps. twice as long as the calyx. Plants somewhat dioecious.—Summits of the higher mountains. P. VII. VIII. *Moss Campion.*

5. Lychnis *Linn.*

1. *L. Viscaria* (L.); pet. emarginate crowned, *st.* glabrous *viscid* below the joints, l. lanceolate glabrous the margins woolly

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at the base, fl. racemose-panicled somewhat whorled, *carpophore half the length of the capsule.—E. B.* 788.—St. simple, 1 foot high. Fl. large, rose-coloured. *Caps.* 5-*celled when young. Seeds* reniform, minute, *acutely tubercled.*—On dry rocks, rare. P. VI. E. S.

2. *L. alpina* (L.); pet. cloven scarcely crowned, *st.* glabrous *not at all viscid*, l. linear-lanceolate glabrous sometimes minutely ciliated at the base, fl. corymbose, *carpophore ½ of the length of the capsule.—E. B.* 2254. *St.* 51. 10.—St. simple, 5—6 in. high. Fl. small, rose-coloured, crown scarcely more than 2 small tubercles upon each petal. *Caps.* 5-*celled when young. Seeds* reniform, minute, *bluntly tubercled.*—Mountains of Glen Isla, Forfarshire, at the height of 3200 feet. P. VI. VII. S.

3. *L. Flos-cuculi* (L.); *pet. deeply* 4-*cleft* crowned: segments linear palmately diverging, cal. with short teeth, st. with deflexed hairs, l. lanceolate the lower ones narrowed below, fl. loosely panicled, caps. 1-celled, *carpophore very short.—E. B.* 573.—St. viscid and brownish above, 1—2 feet high. Pet. rose-coloured, the crown bipartite: segments subulate erect and usually with an acute tooth on the middle of the outer margin. Cal. 10-ribbed. —Moist meadows and pastures. P. V. VI. *Ragged Robin.*

4. *L. vespertina* (Sibth.); *pet.* half *bifid* crowned, st. villose, l. peduncles and cal. hairy, l. ovate-lanceolate, fl. dichotomously panicled dicœcious, *calyx-teeth of the fertile fl. linear-lanceolate elongated, caps. conical: teeth erect.—Hoppe in St.* 23. 9. *L. dioica* β. (L.) *E. B.* 1580.—Fl. white, very rarely reddish. Calyx-teeth of fertile fl. twice as long as those of *L. diurna.*—Hedgebanks. B. (?) VI.—IX. *White Campion.*

5. *L. diurna* (Sibth.); pet. *half* bifid crowned, st. l. and calyces villose, l. ovate acute, fl. dichotomously panicled dicœcious, *calyx-teeth of the fertile fl. triangular, caps. nearly globular: teeth reflexed.—Hoppe in St.* 23. 8. *L. dioica* α. (L.) *E. B.* 1579.—Fl. red, very rarely nearly white. Certainly distinct from the preceding. In the E. B. figures due attention was not paid to the form of the calyx-teeth. Both sometimes have perfect fl. and both vary in colour from red to white and white to red.—Damp hedgebanks. B. (?) V. VI. *Red Campion.*

5. *L. Githago* (Lam.); *pet. entire crownless, calyx-teeth longer than* the tube and also *the petals*, fl. solitary upon long stalks.—*Agrostemma* (L.) *E. B.* 741. *St.* 5. 6.—Fl. large, purple. St. dichotomous, 2—3 feet high. Cal. coriaceous, ribbed, with 5 linear-lanceolate constantly erecto-patent very long segments.—Corn-fields. A. VI.—VIII. *Corn Cockle.*

Suborder II. *Alsineæ.*

6. Buffonia *Linn.*

[1. *B. annua* (DC.); "st. loosely panicled from the base,

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branches spreading short firm, striæ on the calyx straight parallel, caps. scarcely as long as the calyx, l. subulate spreading at the base." *DC.*—*B. tenuifolia* (Sm.) *E. B.* 1313.—It is doubtful to which of DeCand. species the *B. tenuifolia* Linn. should be referred, possibly he included them all under that name.—Said to have been found near Boston, Lincolnshire, and upon Hounslow Heath; probably a mistake. A. VI.] E.

7. SAGINA *Linn.*

1. *S. procumbens* (L.); *st. very short,* branches elongated procumbent, *l. linear mucronate* glabrous, sep. blunt much longer than the petals and slightly shorter than the capsule, *apex of the peduncles reflexed* after flowering *ultimately erect.*—*E. B.* 880. *R.* 4959. *St.* 30. 3.—Central st. very short, barren and erect. The branches elongated, procumbent, often rooting. Pet. blunt, often wanting. A fifth part is occasionally added to the fl. in which case it is distinguished from *Spergula saginoides* by its cal. spreading when in fruit and styles reflexed during flowering. Mr. Borrer found, at Pulborough, Sussex, a curious variety with nearly sessile flowers.—*β. spinosa* (Gibs.); l. longer and narrower very minutely spinose-ciliated on the edges, sepals considerably shorter than the capsule.—Waste ground. A. V.—IX. *Procumbent Pearlwort.*

2. *S. maritima* (Don); *st. elongated forked,* branches ascending, *l. fleshy blunt* rounded at the back glabrous, pet. 0, sep. blunt slightly longer than the capsule, *peduncles always erect.*—*E. B.* 2195. *R.* 4960. *S. stricta* (Fries) *Sv. Bot.* 562. 2.—The central stem produces flowers, erect, or in luxuriant plants more or less procumbent. Caps. sometimes longer than the calyx. Specimens of *S. procumbens* which have become more fleshy from growing near the sea are often mistaken for this plant.—On the sea-shore. [Fries states that his plant sometimes occurs upon mountains in Norway.] A. V.—IX. *Sea Pearlwort.*

3. *S. apetala* (Hard.); st. elongated forked, branches ascending, *l. linear mucronate,* sep. blunt much longer than the petals and shorter than the capsule, peduncles always erect.—*E. B.* 881. *R.* 4958.—Plant pale green, the upper part of the stem, peduncles and calyx more or less clothed with glandular hairs. The central stem elongated and bearing flowers. Branches often quite erect, sometimes prostrate. Pet. very minute, inversely wedge-shaped and truncate. L. ciliated. Tubercles on the seeds acute. *S. ciliata* (Fries) *Sv. Bot.* 562. 1. has the outer sep. acute, not blunt with a mucro as in our plant.—*β. glabra* (Bab.); l. glabrous, tubercles on the seeds blunt, outer sep. obtuse but often mucronate.—*γ. lævis* (Gibs.); smooth in every part.—*δ. prostrata* (Gibs.); plant dark green hairy, stem and branches short all prostrate hairy, l. short. For this I am indebted to Mr. S. Gib-

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son, to whose paper upon these plants in the Phytologist (i. 177.) I would refer the reader.—On walls and dry places. A. V.—IX.

8. SPERGULA *Linn.*

* *L. opposite connate, stipules* 0. Spergella *R.*

1. *S. saginoides* (L.); l. linear mucronate smooth, st. *peduncles and cal. glabrous,* pet. shorter caps. longer than the calyx. —*E. B.* 2105. *R.* 4962.—St. prostrate, slightly rooting, numerous, peduncles long, their apices reflexed after flowering ultimately erect. Caps. rather longer than the calyx, sometimes twice the length when it becomes *S. macrocarpa* R. 4963. b. Closely resembling *Sag. procumbens* but distinguished by the valves of its capsule being much more narrowed upwards, the sep. adpressed and narrower, pet. longer, styles not reflexed.—Highland mountains. P. VI.—VIII.

2. *S. subulata* (Sw.); *l. awned* linear often ciliated, *peduncles and calyx glandular-hairy,* pet. about as long caps. longer than the calyx.—*E. B.* 1082. *R.* 4963.—St. procumbent. Peduncles very long, the apex slightly reflexed after flowering ultimately erect.—Dry gravelly and sandy places. P. VI.—VIII.

3. *S. nodosa* (L.); l. subulate glabrous, *upper l.* shorter *fasciculate, pet. much longer than the calyx,* peduncles always erect.—*E. B.* 694. *R.* 4965.—Primary stem abbreviated, not flowering; lateral stems procumbent at the base then ascending, 2—6 in. long. Fl. terminal 1, 2 or 3 together, white, conspicuous. Whole plant often quite glabrous, but sometimes the upper parts of the stem, the connecting membrane of the leaves and the base of the calyx are glandular-hairy, when it is *S. glandulosa* Bess.—Wet and sandy places. P. VII. VIII. *Knotted Spurrey.*

** *L. not connate, in two opposite clusters so as to appear whorled; stipules scarious.*

4. *S. arvensis* (L.); *l.* linear *convex above furrowed beneath,* fl. panicled, fruitstalks deflexed, seeds slightly compressed tubercled or papillose with a narrow margin.—*E. B.* 1535.—St. 6—12 in. high. L. long, slender. Seeds black, covered with minute elevated points. *S. sativa* Boeningh. *S. arvensis* (R.) *Icon. t.* 511.—*β. vulgaris* (Koch); seeds covered with white or brown clubshaped papillæ. *S. vulgaris* Boeningh., *Reich. Icon. t.* 512.—On cultivated ground. A. VI.—VIII. *Corn Spurrey.*

5. *S. pentandra* (L.); *l.* linear *subterete convex beneath,* fl. panicled, seeds much compressed smooth with a broad membranous margin.—*E. B.* 1536 ?—I have not seen specimens of this plant, which appears to differ from *S. arvensis* only by having the under side of its leaves *not* hollowed into a furrow but convex.—Said to have been found in Ireland. A. VII.? I.?

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9. HOLOSTEUM *Linn.*

1. *H. umbellatum* (L.); fl. umbellate, peduncles pubescent viscid, pedicels reflexed after flowering, l. elliptical or elongate acute.—*E. B.* 27.—On old walls and dry places at Norwich, Bury, Eye and Yarmouth. A. IV. E.

10. STELLARIA *Linn.*

** Capsule opening with entire teeth at the apex, columella linear-elongate.*

1. *S. cerastoides* (L.); st. terete decumbent with an alternate hairy line, l. sessile elliptic-oblong rather acute glabrous, lower l. blunter, peduncles pubescent, pet. cloven nearly twice as long as the calyx which is downy beneath.—*E. B.* 911. *Koch in St.* 64. 1. Dichodon *R.* 4915.—Closely allied to *Cerastium alpinum* in general appearance. St. slender, 2—4 in. long, leafless below and greatly branched. L. light green, glabrous, or with a few hairs on the margin at their base. Fl. large, white. Number of the styles and the teeth of the capsule variable.—*β. nivale*; l. clothed with rather numerous long hairs. *Cerastium nivale* Don. *C. cerastoides α.* Hook. *Fl. Scot.*—Highland mountains. P. VII. VIII. S. I.

*** Caps. opening with entire valves of about half its length, columella linear-elongate.*

2. *S. nemorum* (L.); st. ascending downy above, l. stalked heartshaped, upper l. ovate sessile, panicle dichotomous, peduncles alternately pubescent, pet. deeply bifid twice as long as the lanceolate sepals, caps. longer than the calyx.—*E. B.* 92. *R.* 4906.—St. 1—1½ foot high. L. large, rough on the upper surface, ciliated. Sep. with narrow scarious margins.—Damp woods, north of England and south of Scotland. P. V. VI. *Wood Stitchwort.* E. S.

**** Caps. opening with entire valves of not less than half its length, rounded below or scarcely if at all narrowed; columella very short.*

3. *S. media* (Wither.); *st.* procumbent and ascending *with an alternate hairy line, l. ovate shortly pointed stalked, upper l. sessile,* fl. axillary and terminal, pet. deeply bifid not longer than the ovate-lanceolate single-ribbed glandular-pilose sepals, caps. oblong longer than the calyx.—*E. B.* 537. *R.* 4904.—Very variable in length of stems, size of leaves, number of stamens (3—10), and length of internodes. Sep. with a narrow scarious margin. Fruitstalks reflexed. L. glabrous with broad ciliated petioles.—*β. major* (Koch); l. larger with longer stalks, upper l. sessile and subcordate slightly amplexicaule, stam. 10. *S. neglecta R.* 4905.—*γ. umbrosa*; l. narrowed gradually into long points, cal. more narrowed below, sep. lanceolate acute glabrous

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out tubercular, valves of the caps. narrower, seeds with prominent acute tubercles.—St. much branched, slender. *S. grandiflora* (Ten.) according to Mr. Woods. *S. umbrosa* (Opitz !) *R. Fl. Exsic.* 895. (but that specimen has hairs on the calyx). *S. neglecta* Weihe. Not figured in *R. Icon. Fl. Germ.*—Common. γ. Sussex. A. III.—XI. *Common Chickweed.*

4. *S. Holostea* (L.) ; st. ascending tetragonal with the angles rough, *l. lanceolate-attenuated* acute with a rough margin and keel *all sessile*, fl. in a forked panicle, pet. half bifid twice as long as the lanceolate nerveless sepals, caps. globose about as long as the calyx, *bracts* herbaceous.—*E. B.* 511. *R.* 4908.—St. 1—2 feet high, slender and procumbent at the base, thicker upwards. L. gradually narrowing from a little above the base to the very acute point. Fl. large, white, few in number in a leafy panicle. Mr. Bladon (Phyt. i. 264.) finds near Pont y Pool a variety with "laciniated petals."—Woods and hedges. P. IV.—VI. *Greater Stitchwort.*

5. *S. glauca* (Withering.) ; *st.* erect weak quadrangular *smooth*, *l. linear-lanceolate* acute quite *smooth* sessile, lower l. broader, fl. solitary or in a few-flowered lax corymb, pet. bipartite longer than the lanceolate 3-nerved sepals, caps. oblong-ovate about as long as the calyx, *bracts* with scarious *and glabrous margins.*—*E. B.* 825. *R.* 4909.—Glaucous. St. 6—12 in. high, leafy. Pet. deeply bifid : segments linear, white, sometimes considerably longer than the calyx.—Marshy places. P. V.—VII.

6. *S. graminea* (L.) ; st. diffuse quadrangular smooth, *l.* linear-lanceolate acute quite *smooth* ciliated below sessile, fl. in a dichotomous panicle, pet. bipartite as long or longer than the 3-nerved sepals, caps. oblong longer than the calyx, *bracts scarious ciliated.*—*E. B.* 803.—St. 1—2 feet high. Fl. smaller than those of the 2 last, white. Mr. Leighton has observed a variety with the pet. twice as long as the calyx but differing in no other respect.—Dr. Deakin describes the l. of *S. graminea* as "gradually tapering from the base to the point," and distinguishes as *S. Babingtonii* (Deak.) a plant with the l. "linear with a lanceolate point" not at all ciliated "with darker more wrinkled seeds, caps. and pet. scarcely longer than the calyx," *Flor. Brit.* ii. 645. fig. 735. I have not seen this plant and doubt its being a distinct species; it is found "in the Swann pool near Lincoln."—*S. longifolia* (Fr.), *S. Friesiana* (Koch), differs from *S. graminea* by having the upper part of its stem and the edges and keel of its leaves scabrous.—Dry heathy and bushy places. P. V.—VIII. *Lesser Stitchwort.*

7. *S. scapigera* (Willd.); st. shorter than the peduncles erect, l. linear-lanceolate slightly pubescent on the margins, peduncles long rising far above the leaves slender glabrous simple or once forked, pet. deeply divided equalling the lanceolate acute slightly

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fringed 3-ribbed sepals.—*E. B.* 1269. l. much broader than in my cultivated specimen.—Caps. pyramidal obtuse divided halfway down. I have not seen any wild specimens of this remarkable plant except those gathered by Mr. Don.—By the sides of rivulets to the north of Dunkeld and about Loch Nevis, Scotland. *Mr. G. Don.* P. VI. S.

**** *Caps. opening with 6 entire valves of not less than half its length, attenuated below, hence the cal. has a funnel-shaped base.*

8. *S. uliginosa* (Murr.); *st.* diffuse quadrangular *glabrous, l.* oblong-lanceolate acute with a callous tip *glabrous* slightly *ciliated below* sessile, fl. irregularly panicled lateral and terminal, pet. bipartite shorter than the lanceolate 3-nerved sepals, caps. ovate nearly as long as the calyx, *bracts scarious with glabrous* margins.—*E. B.* 1074. Larbrea *R. Icon. t.* 226. L. aquatica *St. Hil.*—Very variable in size, usually about a foot long. Fl. in small panicles mostly axillary. On the summits of the Clova mountains (3200 feet) it is about 2 in. long, with minute leaves and usually solitary flowers.—In damp places. A. V. VI.

11. Malachium *Fries.*

1. *M. aquaticum* (Fr.); st. decumbent and ascending angular covered with glandular hairs, l. cordate-ovate acuminate sessile, the lowest one stalked, fl. scattered solitary in the forks of the stem, pet. bipartite rather longer than the calyx, caps. longer than the calyx.—*R.* 4967. Cerastium *E. B.* 538. Larbrea *Ser.*—Closely resembling *Stellaria nemorum.*—In wet places. P. VII. VIII. *Water Chickweed.* E. S.

12. Arenaria *Linn.*

1. *A. serpyllifolia* (L.); *l. ovate* acute subscabrous sessile, *pet. shorter than the calyx,* sep. lanceolate acute 3-ribbed hairy.—*E. B.* 923. *R.* 4941.—St. prostrate or ascending dichotomous. Fl. from the forks of the stem or the axils of the upper leaves. Pet. narrowly ovate, narrowed below. Clothed all over with minute hairs which are sometimes glandular. According to Hooker (Br. Fl. 53.) Wilson finds a plant at Bangor with 5 stam., the pet. only ¼ as long as the cal. and the sep. with prominent ribs.—*β. tenuior* (Koch); stems much more slender, fl. and fr. of half the size. *Var. β. leptoclados* (R.).—Dry places and walls. A. VI.—VIII.

2. *A. ciliata* (L.); *l. spathulate ciliated, pet. longer than the calyx,* sep. ovate-lanceolate with 3 prominent ribs.—*E. B.* 1745. *R.* 4942.—St. much branched, ascending, rough. Fl. 1—5, terminal, somewhat panicled. Pet. ovate, slightly clawed. Distinguished from *A. multicaulis* by its keeled sepals. In the foreign

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plant the leaves are usually ciliated only near the base.—On limestone cliffs on Ben Bulbea, &c., Sligo. P. VI. VII. I.

3. *A. norvegica* (Gunn.); *l. spathulate obovate fleshy not ciliated*, pet. longer than the calyx, *sep.* ovate acute *obscurely* 3-*ribbed* glabrous.—*E. B. S.* 2852.—St. much branched, procumbent, nearly smooth. Fl. 1—3, terminal. Pet. ovate, slightly clawed. Seed dark brown, tuberculated. Distinguished from *A. ciliata* by its fleshy not ciliated l. which are less narrowed below, and the shorter point and obscure ribs of its sepals; in *A. multicaulis* the point of the sep. is longer than that of *A. ciliata*.—On Serpentine Hill, Unst, Shetland. P. VII. VIII. S.

13. Moehringia *Linn.*

1. *M. trinervia* (Clairv.); l. ovate acute stalked 3—5-nerved the upper ones sessile, pet. shorter than the calyx, sep. lanceolate acute 3-ribbed the intermediate rib strongest and rough.—*R.* 4943. *Arenaria* Sm. *E. B.* 1483.—St. about a foot high, weak, branched, downy. Fl. solitary from the forks of the stem and axils of the upper leaves. Peduncles ultimately spreading and curved just below the fruit. The lateral nerves of the sep. often obsolete. Distinguished from *Arenaria* and *Alsine* by the appendage to the hilum of its seeds.—Damp shady places. A. V. VI.

14. Alsine *Wahl.*

* *Leaves with stipules.*

1. *A. rubra* (Wahl.); *seeds angular rough* wingless, *l. flat on both sides* linear pointed, sep. lanceolate obtuse obscurely 3-nerved about as long as the capsule.—*Arenaria* Sm. *E. B.* 852.—St. procumbent, the extremity and the peduncles and calyces covered with fine glandular hairs. Seeds rough all over, triangular-pyriform, small.—Sandy fields. A. VI.—IX.

2. *A. marina* (M. and K.); *seeds roundish nearly smooth* with or without a scarious margin, *l. convex below fleshy* linear, sep. ovate-lanceolate obtuse obscurely 3-nerved shorter than the capsule.—Arenaria *E. B.* 958.—St. smooth or downy.—*α. minor* (Koch); seeds mostly wingless nearly smooth with a thickened rough margin a few of the lower ones winged, caps. usually but little longer than the calyx. *A. media* [Wither.], *A. marina* [Reich.!].—*β. obesior* (Koch); seeds nearly all winged, caps. often twice as long as the calyx. *A. marina* [Wither.], *A. marginata* (DC.) *Icon. Rar.* 48. *Reich.*—These varieties are scarcely distinguishable, see *Boenningh. Prod. Monast.* 129. Mr. Gibson (Phyt. i. 217.) considers them quite distinct.—Sea-coast. A. VI.—VIII.

** *Stipules none.*

†. Leaves elliptical or ovate, calyx-valves broad, seeds few.

3. *A. peploides* (Wahl.); l. sessile ovate acute fleshy glabrous

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1-nerved, pet. obovate, sep. ovate obtuse 1-nerved shorter than the petals.—Arenaria *E. B.* 189. Honckenya *R.* 3670.—St. dichotomous, procumbent, often much buried in the sand. Fl. from the forks of the stem, frequently diœcious.—Sandy seacoasts. P. VI.—IX.

†† Leaves narrow linear or subulate.

4. *A. verna* (Jacq.); *l.* linear-subulate *acute* 3-nerved, *pet. longer than the calyx* rounded-obovate attenuated below, sep. ovate-lanceolate acute 3-nerved with a membranous margin, peduncles 1- or many-flowered.—Arenaria *E. B.* 512. Triphane *R.* 4929.—L. usually not adpressed and mostly with a minute point. —*β. Gerardi*; l. subulate bluntish not apiculate, pet. elliptical shortly clawed scarcely longer than the calyx. T. Gerardi *R.* 4928. The l. being usually pressed close to the stem gives this plant a peculiar appearance, but the only characters which I can detect by which to distinguish it from *A. verna* are the bluntish, not apiculated, leaves and the form of the petals.—Rocky places in mountainous districts. *β.* On the hills above Kynance Cove near the Lizard Point, Cornwall. P. V.—IX.

5. *A. rubella* (Wahl.); *l.* linear-subulate *blunt* 3-nerved, *pet.* obovate attenuated below *shorter than the calyx*, sep. ovate-lanceolate acute 3-nerved with a membranous margin, peduncles 1-flowered.—*E. B. S.* 2638. *Wahl. Lap. t.* 6.—St. numerous. Peduncles terminal, downy, nearly always single-flowered, about an inch long, with 1—3 pairs of leaves. The number of styles and valves of the capsule varies from 3—5, thereby showing the very artificial character of these genera. I have found it impossible to determine without authentic specimens if this is the same as *Sagina decandra* (Reich.) or *A. sedoides* (Froel.) Koch. —Summits of the Scotch mountains, very rare. P. VII. VIII. S.

6. *A. tenuifolia* (Wahl.); l. subulate acute 3-nerved, *ovate attenuated below shorter than the calyx*, sep. lanceolate-subulate 3-nerved with a membranous margin.—Arenaria *E. B.* 219. Sabulina *R.* 4916.—St. slender, 4—6 in. high, much branched, dichotomous, with flowers from the axils. Glabrous.—Sandy and chalky places. A. V. VI. E.

7. *A. fastigiata*; *l.* subulate *acute* 3-nerved, pet. oblong obtuse *half the length of the calyx*, sep. lanceolate acute equal (white) with 2 central (green) ribs.—*Arenaria* Sm. *E. B.* 1744. Minuartia *R.* 4919.—"Mountains of Fifeshire and on the mountains to the westward of Clova." *Mr. G. Don.* A. VI. S.

15. Moenchia *Ehrh.*

1. *M. erecta* (Sm.); stam. 4.—*E. B.* 609. *R.* 4953.—St. usually 2-flowered, erect, glabrous, 1—4 in. high. L. opposite, linear-

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lanceolate, acute, rigid. Sep. with broad white membranous margins, acute. The whole plant glaucous.—Dry gravelly and sandy places. A. V. VI. E.

16. CERASTIUM *Linn.*

* *Root fibrous scarcely more than annual. Pet. not longer than the calyx.*

† Caps. curved, pet. about as long as the calyx.

1. *C. glomeratum* (Thuil.); l. ovate, sep. lanceolate acute with a narrow membranous margin and *as well as the herbaceous bracts hairy throughout*, caps. cylindrical ascending twice as long as the calyx, *fruitstalks about as long as the calyx.*—*Koch in St.* 63. 13. C. vulgatum *Sm. E. B.* 789. *R.* 4790. C. viscosum *Fries, Gaud.*—St. erect. Fl. aggregated or in dichotomous panicles, longer than their stalks. A slender form of this plant without petals has been noticed by Mr. Borrer at Reigate, Surrey.—Fields and banks. A. IV.—IX.

2. *C. triviale* (Link); l. oblong-lanceolate, *sep.* oblong-ovate bluntish and *as well as the bracts membranous at their margins and glabrous apices*, caps. cylindrical ascending twice as long as the calyx, *fruitstalks* as long as the calyx.—*R.* 4972. *Koch in St.* 63. 8. C. viscosum *Sm. E. B.* 790. C. vulgatum *Fries.*—St. mostly procumbent. Fl. larger than those of the last, in small terminal panicles the branches of which become much elongated as the fruit advances to maturity.—*β. holosteoides* (Fries); glabrous, the sides of the stem alternately pubescent, fl. subumbellate. *St.* 63. 9.—In fields. *β.* Red Heugh near Gateshead. *Mr. Robertson.* Kinfauns near Perth. *Mr. J. Gorrie.*

†† Caps. nearly straight, pet. shorter than the calyx.

3. *C. semidecandrum* (L.); l. broadly ovate, *sep.* lanceolate *broadly membranous at their margins and apices, bracts with their upper half membranous*, caps. cylindrical slightly inflated erect longer than the calyx, *fruitstalks* longer than the calyx *at first reflexed afterwards erect.*—*E. B.* 1630. *R.* 4968.—St. erect or decumbent, downy, sometimes viscid. Distinguished by its half membranous bracts.—Common in dry places. A. IV. V.

4. *C. atrovirens* (Bab.); *l. ovate or oblong* slightly pointed, *sep.* lanceolate acute with *their apex and margins narrowly membranous, bracts herbaceous with a very narrow membranous margin*, caps. longer than the calyx, *fruitstalks longer than the calyx erect or ascending.*—*Bab. in Mag. Zool. Bot.* ii. t. 9.—Pet. scarcely shorter than the calyx or half as long. Fruitstalks twice, or 3—4 times, as long as the calyx, sometimes patent, but never (I believe) reflexed. St. repeatedly forked, bearing *a flower in each fork.* The membranous margin of the bracts is sometimes scarcely

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distinguishable even in the living plant. It seems not improbable that this is the *C. obscurum* Chaubaud (Fl. Agen.), but French specimens of that plant have the fruitstalks mostly bent just under the calyx, which I do not find to be the case in our plant, whose stems also are much more branched. I have therefore retained the present name. *C. pumilum* (Koch) *in St.* 64. 12. appears to represent *C. obscurum*, and *C. tetrandrum* (Koch) *in St.* 64. 15. is probably *C. atrovirens*.—On sandy places and rocks near the sea. A. V.—VII.

5. *C. pumilum* (Curt.); *l. ovate-lanceolate*, sep. lanceolate acute with the apex and margins narrowly membranous, *bracts herbaceous* with an extremely narrow membranous margin, caps. slightly curved upwards longer than the calyx, *fruitstalks scarcely longer than the calyx reflexed.—Curt. Lond.* 2. 92.—St. branched at the root, afterwards nearly simple, prostrate, or ascending. *Fl. in small terminal dichotomous corymbs.* Distinguished by its reflexed fruit, short fruitstalks and membranous apex of the sepals. It is possible that this and the preceding and *C. obscurum* (Chaub.) may prove to be forms of one species, but after long study of the plants I am not yet *convinced* that such is the fact. Their difference from *C. semidecandrum* will be at once seen.—Near Croydon, Surrey. *Mr. Dickson*! A. V.? E.

6. *C. tetrandrum* (Curt.); *l. elliptical-oblong the uppermost ovate or nearly orbicular* blunt, *sep.* lanceolate very acute attenuated upwards *their sides broadly membranous and apex with a central nearly excurrent herbaceous line,* " caps. a little longer than the calyx straight, fruitstalks elongated reflexed."—*Curt. Lond.* 6. 30.—Fl. large, from the forks of the stem. I have been unable to detect bracts unless the broad round upper leaves are to be considered as representing them. Distinguished by its reflexed fruit and the herbaceous line extending from the end of the green part of the sepals to their extreme point.—Tynemouth and Shetland. A. V. E. S.

** *Root truly perennial, with prostrate leafy shoots. Pet. longer than the calyx.*

7. *C. alpinum* (L.); hairy, st. ascending, *l. ovate ovate-oblong or lanceolate*, fl. few, sep. bluntish with membranous margins, bracts herbaceous their margins often narrowly membranous, caps. at length twice as long as the calyx.—*E. B.* 472. *Koch in St.* 64. 3.—Pubescence long, silky. St. mostly simple, elongated, prostrate or ascending. Fl. 1, 2 or 3 together, in a forked panicle, shorter than their stalks. Bracts with slightly membranous margins.—*β. piloso-pubescens* (Benth.); pubescence short, bristly, st. branched, fl. usually solitary, bracts often wanting or with scarcely any membranous margin. *C. latifolium* (Sm.) *E. B.* 473.—Alpine parts of Wales and Scotland. P. VI.—VIII. E. S.

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8. *C. latifolium* (L.); pubescence short rigid glandular dense, *st. prostrate cæspitose, l. orbicular* blunt, fl. usually solitary, sep. blunt with membranous margins, bracts herbaceous, *"caps. scarcely longer than the calyx."*—*C. latifolium var. glaciale* (Gaud.) *Koch in St.* 64. 15. *R.* 4975. *Edmondston in Phyt.* i. 497.—St. short, densely leafy. L. dark green. Peduncle equalling the flower, longer than the fruit. This appears to be the true Linnæan plant. —Unst, Shetland. *Mr. T. Edmondston, Jun.* P. V. S.

9. *C. arvense* (L.); st. ascending prostrate below, *l. linear-lanceolate*, fl. numerous, sep. and *bracts* lanceolate slightly acute *with membranous margins and apices*, caps. at last longer than the calyx.—*E. B.* 93.—St. long. Fl. 7—14, in dichotomous panicles. Fruitstalks erect, bent just under the calyx.—In gravelly and chalky places. P. IV.—VIII.

17. CHERLERIA *Linn.*

1. *C. sedoides* (L.). The only species.—*E. B.* 1212.—Pet. generally wanting. Fl. solitary, on short stalks. St. very numerous, forming a dense mass close to the ground. L. very numerous, linear-subulate, finely ciliated.—Summits of the highland mountains. P. VI.—VIII. S.

Order XVI. MALVACEÆ.

Sep. 5 or 3 or 4, more or less connected below, often double, æstivation valvate. Pet. as many as the sepals, æstivation twisted. Stam. monadelphous, indefinite; anth. 1-celled, reniform bursting transversely. Ovary formed by the union of several carpels round a common axis. Carp. 1- or many-seeded. Embryo curved with twisted or doubled cotyledons, albumen variable in quantity.—L. alternate, with stipules.

1. MALVA. Styles numerous. Cal. double, *outer* 3-*leaved*, inner 5-fid. Caps. orbicular, many-celled: cells 1-seeded and circularly arranged.
2. ALTHÆA. Styles numerous. Cal. double, *outer* 6—9-*fid*, inner 5-fid. Caps. orbicular, many-celled: cells 1-seeded and circularly arranged.
3. LAVATERA. Styles numerous. Cal. double, *outer* 3-*lobed*, inner 5-fid. Caps. orbicular, many-celled: cells 1-seeded and circularly arranged.

1. MALVA *Linn.*

1. *M. moschata* (L.); st. erect, l. kidneyshaped *with* 5 *or* 7 *deep pinnatifid lobes*, lower l. inciso-crenate, stipules lanceolate acute, fruitstalks erect, outer sep. linear-lanceolate, fruit hairy. —*E. B.* 754. *R.* 4841.—Fl. large, rose-coloured, on axillary single flowered peduncles, crowded at the extremity of the stem

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and branches. Cal. hairy. St. 1—2 feet high.—Gravelly places. P. VII. VIII. *Musk Mallow.*

2. *M. sylvestris*, (L.); *st. erect, l. kidneyshaped with 7 deep crenate lobes,* stipules lanceolate, fruitstalks erect, outer sep. lanceolate, *fruit glabrous reticulate-rugose.—E. B.* 671. *R.* 4840. —Fl. large. Pet. much longer than the hairy calyx, purple, on axillary aggregated peduncles. St. 2—4 feet high.—Road-sides and waste places. P. VI.—IX. *Common Mallow.*

3. *M. rotundifolia* (L.); *st. decumbent,* l. roundish-heartshaped with 5 shallow acutely crenate lobes, stipules ovate-acute, fruitstalks decurved, *outer sepals* linear-lanceolate *shorter than the* ovate-acuminate *stellately hairy inner ones,* pet. 2 or 3 times longer than the calyx, fruit pubescent rounded on the edge smooth.—*E. B.* 1092. *M. vulgaris* Fries.—Fl. small, purple. Carpels meeting each other with a straight line. Central disk of the fruit rather large.—Waste places. P.? VI.—IX. *Dwarf Mallow.*

4. *M. borealis* (Wallm.); st. decumbent, l. roundish heartshaped with 5 rather shallow crenate-serrate lobes, stipules lanceolate, fruitstalks deflexed, *outer sep.* linear *as long as the* ovate-acute *glabrous but* strongly *ciliated inner ones,* pet. about as long as the calyx, fr. pubescent *margined reticulate-rugose.* —*M. pusilla* Sm. *E. B.* 241. *M. rotundifolia* Fries, *R.*! 4835. —Fl. very small. Carpels meeting each other with a toothed edge (R.). Central disk half as large as in the preceding plant. I have seen no native specimens of this plant, but described it from foreign authors and Reichenbach's figure, and specimen which is without fruit.—Near Hythe in Kent. *Huds.* A. VII.? E.

2. ALTHÆA *Linn.*

1. *A. officinalis* (L.); l. soft on both sides crenate or crenate-serrate cordate or ovate 3—5-lobed, peduncles axillary many-flowered shorter than the leaves, st. downy.—*E. B.* 147. *R.* 4849. —St. 2—3 feet high. Covered throughout with soft velvety pubescence.—Marshes, particularly near the sea. P. VIII. IX. *Marsh Mallow.*

†2. *A. hirsuta* (L.); l. hispid, lower l. reniform obtusely 5-lobed, upper l. palmate with 5 or 3 acute lobes, peduncles axillary single-flowered longer than the leaves, st. hispid.— *E. B. S.* 2674. *R.* 4846.—Remarkably hispid on its stem leaves and calyx.—Between Cobham and Cuxton, Kent. A.VI.VII.—E.

3. LAVATERA *Linn.*

1. *L. arborea* (L.); st. woody, l. 7-angled plaited velvety, peduncles axillary aggregated single-flowered shorter than the petioles.—*E. B.* 1841. *R.* 4857.—Fl. much like those of *Malva*

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sylvestris, purplish rose-coloured with darker veins. St. 6—8 feet high.—On maritime rocks, rare. B. VII.—IX. *Tree Mallow.*

Order XVII. TILIACEÆ.

Sep. 4—5, æstivation valvate. Pet. 4—5. Stam. distinct, indefinite; anth. 2-celled, bursting longitudinally. Glands 4—5 at the base of the petals. Caps. 4—10-celled, several seeds in each cell or by abortion 1-celled 1-seeded. Embryo erect in the axis of fleshy albumen; cotyledons flat, leafy.—L. alternate, with stipules.

1. TILIA. Sep. 5, deciduous. Pet. 5, with or without a scale on the outside. Stam. indefinite, free, or polyadelphous. Ovary 5-celled, cells 2-seeded. Style 1. Fr. 1-celled, with 1 or 2 seeds.

1. TILIA *Linn.*

*1. *T. europæa* (L.); *l.* obliquely cordate *glabrous* except a woolly tuft at the origin of each nerve beneath, peduncles many-flowered, *fruit nearly smooth coriaceous* downy.—*E. B.* 610.—Fl. in a naked cyme springing from a lanceolate leafy bract. *L. twice the length of their petioles.* The staminodium does not occur in either of our native species.—In many old plantations. T. VII. *Common Lime Tree.*

2. *T. parvifolia* (Ehrh.); *l.* obliquely cordate *glabrous* except a woolly tuft at the origin of each nerve beneath, peduncles many-flowered, *fruit angular thin and brittle.—E. B.* 1705.—*L. usually scarcely longer than their petioles,* by which and by its thin, not coriaceous fruit it is distinguished from the preceding. Lobes of the stigma ultimately spreading horizontally. In woods. Probably the only truly native species. T. VIII. *Small-leaved Lime Tree.*

*3. *T. grandifolia* (Ehrh.); *l.* obliquely cordate *downy beneath* with a woolly tuft at the origin of each nerve beneath, peduncles mostly 3-flowered, *fruit with 5 prominent angles* woody downy turbinate.—*E. B. S.* 2720.—Young shoots hairy. L. longer than their petioles. Lobes of the stigma erect.—*T. rubra* (Lindl. Syn.) is stated to have globose and smooth fruit and to be the *T. corallina* Sm. I have not seen it. Reichenbach places it in a section in which the bract extends to the base of the peduncle and refers *E. B. S.* 2720 to it. That plate represents the bract as not extending to the base, but, judging from my specimens of *T. grandifolia*, that character is not to be depended upon. —In old plantations. T. VI. VII. *Broad-leaved Lime Tree.* E. I.

Order XVIII. HYPERICINEÆ.

Sep. 4—5, distinct or cohering, persistent, with glandular dots,

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imbricate. Pet. 4—5, twisted in æstivation. Stam. indefinite, polyadelphous, connected in 3 or 4 bundles at the base. Anthers versatile. Styles several, rarely connate. Fruit a capsule or berry of many cells and many valves, the valves curved inwards. Seeds minute, indefinite, on a central axis or the turned margins of the valves, embryo straight with no albumen.—L. mostly opposite, with pellucid dots. Fl. yellow.

1. HYPERICUM. Cal. 5-parted or of 5 sepals. Pet. 5. Styles 3 (in nearly all our plants) or 5. Caps. more or less perfectly 3-celled.—Fl. yellow.

1. HYPERICUM *Linn.* St. John's Wort.

* *Styles* 5.

*1. *H. calycinum* (L.); st. shrubby square, l. oblong, fl. solitary, sep. unequal obovate obtuse, pet. often lobed on one side. —*E. B.* 2017.—Fl. very large.—Naturalized in bushy places in Wicklow and Cork, also in Scotland, but I fear not an original native. P. VII.—IX. S. I.

** *Styles* 3, *sep. without glandular serratures.*

2. *H. Androsæmum* (L.); st. shrubby compressed 2-edged, l. cordate-ovate, cymes trichotomous few-flowered, *sep.* unequal subcordate-ovate, pet. oval obtuse, *caps.* finally pulpy *imperfectly 3-celled.*—*E. B.* 1225. *Androsæmum officinale* Koch.—St. 2 feet high. L. large, having a strong aromatic smell when rubbed. Fl. large in terminal cymes. Berry black.—Woods and thickets. P. VII. VIII. *Tutsan.*

3. *H. quadrangulum* (L.); *st.* erect *with* 4 *wings,* l. oval-oblong or elliptical with pellucid dots, *sep. erect lanceolate acuminate entire,* pet. lanceolate, styles half the length of the capsule.—*E. B.* 370. *H. tetrapterum* Fries, Koch.—St. 1—2 feet high. Fl. in terminal forked close many-flowered cymes. Linnæus quotes *Hort. Cliff.* 380. *No.* 5. as the original authority for his *H. quadrangulum,* of which he there says "folia calycina subulata," it therefore is the present plant.—In wet places. P. VII.

4. *H. maculatum* (Crantz); st. erect 4-angular, l. elliptical-ovate obtuse with a few pellucid dots, *sep. reflexed ovate-lanceolate denticulate obtuse mucronate* with pellucid streaks, pet. elliptical obtuse with purple streaks and dots beneath, styles half the length of the capsule.—*H. delphinense* Vill.! *H. quadrangulum* Fries, Leight.—St. 1—2 feet high. Fl. in forked terminal cymes. —Moist places by ditches, rivers, &c. P. VII. E.

5. *H. dubium* (Leers); st. erect obscurely quadrangular, l. elliptical obtuse with a few pellucid dots, *sep. reflexed broad elliptical obtuse quite entire* with numerous black dots on the outside, pet. elliptical with many black dots, styles half the length of the capsule.—*E. B.* 296. *H. quadrangulum* Wimm. et Grab.—St.

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1—2 feet high. See *Trans. Edin. Bot. Soc.* i. 88.—In mountainous places, rare. P. VII. VIII. E. S.

6. *H. perforatum* (L.); st. erect 2-edged, l. elliptic-oblong or linear-oblong with pellucid dots, *sep. erect* lanceolate acute denticulate near the apex, pet. obliquely oblong, *styles as long as the capsule.*—*E. B.* 295.—St. 1—2 feet high. The l. vary much in form being sometimes nearly linear (*β. angustifolium* Koch. *H. veronense* Schrank.), the number and size of the pellucid dots is also very variable. Under side of the l. and pet. with black dots. —Woods, hedgebanks, &c. P. VII. VIII.

7. *H. humifusum* (L.); *st. prostrate* somewhat 2-edged, l. oval-oblong obtuse minutely pellucid-punctate the margins with black dots beneath, fl. subcymose, *sep.* unequal, 3 *oblong obtuse mucronate*, 2 lanceolate, all entire or glandular-serrate and having a few black dots beneath, *stam. not more than* 15, *styles very short.*—*E. B.* 1226.—St. procumbent, slender, 3—6 in. long. The presence or absence of the glandular serratures on the sepals makes it uncertain to which section this plant ought to be referred.—Gravelly and heathy places. P. VII.

*** *Styles* 3, *sep. with glandular serratures.*

8. *H. linariifolium* (Vahl); st. erect or ascending terete, l. linear obtuse with revolute margins, fl. cymose, *sep.* rather unequal *lanceolate acute* with glandular serratures and numerous black dots beneath, *stam. about* 30, *styles half as long as the capsule.* —*E. B. S.* 2851.—St. either wholly erect or procumbent at the base. Fl. larger than in the last.—Jersey. Cape Cornwall. Banks of the Teign, Devon. P. VII. E.

9. *H. barbatum* (Jacq.); st. erect slightly 2-edged, l. oblong-lanceolate with revolute margins and scattered black dots on both sides and pellucid punctures, *sep.* lanceolate *fringed*: *the hairs* minutely glandular at the end and *as long as the diameter of the sepals* which have numerous black dots beneath, pet. obovate minutely ciliated and copiously dotted.—*E. B.* 1986.—I have seen a specimen from Mr. G. Don and drawn the character from that and Smith's figure and description.—"Aberdalgy in Strathearn, Perthshire." *Mr. G. Don.* P. IX. X. S.

10. *H. hirsutum* (L.); *st.* erect round *hairy*, *l.* oval-oblong *slightly stalked* pellucid-punctate *pubescent*, *sep.* lanceolate acute *fringed with shortly stalked glands*, pet. linear oblong tipped with stalked glands, styles deciduous.—*E. B.* 1156.—St. about 2 feet high, nearly simple. Fl. in axillary and terminal forked panicles. "Seeds longitudinally papillose." *Leight.*—Woods and thickets. P. VII. VIII.

11. *H. montanum* (L.); st. erect round *glabrous*, l. ovate-oblong sessile pellucid-punctate with glandular dots near the mar-

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gin, *sep. lanceolate acute fringed with shortly stalked glands,* pet. elliptical entire without dots or glands, styles half the length of the capsule.—*E. B.* 371.—St. two feet high, simple. Fl. in terminal dense panicles. Seeds with longitudinal crenate ridges. —Bushy limestone hills. P. VII. VIII. E.

12. *H. pulchrum* (L.); *st.* erect round *glabrous, l. cordate amplexicaule* pellucid-punctate *glabrous, sep. broadly ovate obtuse fringed with sessile glands,* pet. ovate-lanceolate fringed with glands.—*E. B.* 1227.—St. 12—18 in. high, nearly simple. Fl. in loose, axillary, opposite, and terminal panicles. Buds tipped with red. Anth. red.—Dry heaths, banks, woods. P. VI. VII.

13. *H. elodes* (L.); *st.* ascending round *shaggy rooting below, l. roundish-ovate sessile* pellucid-punctate *shaggy,* sep. ovate bluntish glabrous fringed with shortly stalked glands, pet. ovate entire, styles nearly as long as the capsules.—*E. B.* 109.—St. prostrate below, then ascending and leafy. Fl. in terminal and axillary few-flowered panicles. "Seeds longitudinally furrowed." *Leight.* Spongy bogs. P. VII. VIII.

Order XIX. ACERINEÆ.

Cal. 5-, rarely 4—9-parted, imbricated. Pet. the same number, inserted round a hypogynous disk. Stam. generally 8, inserted on the hypogynous disk. Ovary 2-lobed, 2-celled. Style 1. Stigmas 2. Fruit winged, separating into 2 indehiscent carpels of 1 cell and 1—2 seeds. Embryo curved, albumen 0.—Trees with opposite leaves.

1. ACER. Fl. polygamous. Caps. 5-parted. Pet. 5. Stam. usually 8, longer in the male flowers.

1. ACER *Linn.*

1. *A. campestre* (L.); l. 5-lobed: lobes entire or slightly cut, *corymbs erect,* sep. and pet. linear hairy, wings of the fruit horizontally diverging, ovary downy, stam. of the male flowers as long as the corolla.—*E. B.* 304.—A small tree with corky bark full of fissures.—Woods and hedges. T. V. VI. *Maple.*

*2. *A. Pseudo-platanus* (L.); l. 5-lobed unequally serrated, *racemes pendulous,* ovary downy with spreading wings, stam. of the male flowers twice as long as the corolla.—*E. B.* 303.—A large handsome tree.—In hedges and plantations. T. V. VI. *Sycamore.*

Order XX. GERANIACEÆ.

Sep. 5, persistent, imbricated. Pet. 5, clawed, twisted in æstivation. Stam. generally monadelphous, 2 or 3 times as many as the petals, some often abortive. Fruit of 5 carpels with

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a membranous indehiscent pericarp and indurated style which finally twists up, separating from the axis (gynobase), and carries with it the pericarp. Seeds solitary, without albumen. Cotyledons convolute, plaited.

1. GERANIUM. Sep. 5. Pet. 5. Stam. 10, monadelphous, alternately larger and with glands at their base. Fruit beaked, separating into 5 1-seeded capsules, each with a long ultimately recurved awn glabrous internally.

2. ERODIUM. Sep. 5. Pet. 5. Stam. monadelphous, 5 sterile, (♂ with glands at their base, ♀ fertile) Fruit beaked, separating into 5 1-seeded capsules, each with a long ultimately spirally twisted awn bearded internally.

1. GERANIUM *Linn.* Cranesbill.

* *Root consisting of long fibres springing from a præmorse rhizoma, perennial.*

1. *G. phæum* (L.) ; peduncles 2-flowered, pet. roundish wedge-shaped rather longer than the mucronate sepals, "*caps.* hairy below *transversely wrinkled* above, *seeds punctate-striate.*"—*E. B.* 322.—St. erect, 2 feet high. L. 5-lobed : lobes acute, cut, serrated. Fl. purplish black.—In woods and thickets, rare. "With white fl. on the sands of Barrie near Dundee." *Hooker.* P. V. VI. E. S.

2. *G. nodosum* (L.) ; peduncles 2-flowered, *pet.* obcordate *twice as long as the awned sepals, caps. even* downy, l. 3—5-lobed : lobes ovate acuminate serrate.—*E. B.* 1091.—St. 18 in. high, slender, erect. Fl. pale purple. I have seen no specimens.—In Cumberland and Hertfordshire. Very rare. P. V.—VIII.—E.

3. *G. sylvaticum* (L.) ; peduncles 2-flowered, pet. obovate slightly notched twice as long as the awned sepals, caps. even hairy : hairs spreading glandular, *seeds dotted,* l. palmate 7-lobed : lobes cut and serrated, st. erect glandular-hairy above, *filaments* of the stam. *subulate, fruitstalks erect.*—*E. B.* 121.—St. erect, 2—3 feet high. Fl. blue, claws of the petals bearded, filaments hairy half way up. A specimen from Dr. Greville (found at Dollar) with pale rose-coloured flowers, smaller and nearly entire petals and a more decidedly hairy stem, is probably the *var.* β. *fastigiatum* (Fries) *Nov.* 211.—Woods and thickets, rare. P. VI. VII.

4. *G. pratense* (L.) ; *peduncles 2-flowered,* pet. obovate entire or slightly notched twice as long as the awned sepals, *caps.* even *hairy : hairs spreading glandular, seeds "minutely reticulated,"* l. palmate 7-lobed : lobes cut and serrated, st. diffuse glandular hairy above : hairs deflexed, *filaments* of the stam. filiform *with a triangular-ovate base, fruitstalks deflexed.*—*E. B.* 404.—St. 1—2 feet high. Fl. large, purple, claw of the pet. ciliated not

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bearded. Filaments slightly hairy at their base.—Moist pastures. P. VI.—VIII.

5. *G. sanguineum* (L.); *peduncles mostly single-flowered,* pet. obcordate twice as long as the awned sepals, *caps.* *"smooth crowned with a few bristles,* seeds minutely wrinkled and dotted," l. nearly orbicular 7-lobed: lobes deeply 3-fid and cut, st. diffuse hairy: *hairs spreading* horizontally.—*E. B.* 272.—Fl. large purple, filaments dilated at the base.—*β. prostratum*; st. dwarf tufted nearly simple decumbent, fl. flesh-coloured. *G. prostratum* Lindl. *G. lancastriense* With. I have wild specimens of this variety, through the kindness of my friend Mr. S. H. Haslam, but can detect no character by which to separate it specifically.—On limestone rock in hilly places. *β.* Sands in Walney Island, Lancashire. P. VII.

** *Root fusiform, rhizoma wanting, perennial.*

6. *G. pyrenaicum* (L.); peduncles 2-flowered, fruitstalks deflexed, *pet.* obcordate *twice as long as the* mucronate *sep.*: *claws densely ciliated,* caps. smooth with adpressed hairs, seeds smooth, l. reniform 7—9-lobed: lobes oblong obtuse trifid and toothed at the end, *st.* erect *villose.*—*E. B.* 405.—Fl. light purple or nearly white. Claws of the pet. with a dense tuft of hairs on each side. Segments of the upper leaves more acute. Fertile anth. 10. St. spreading, 1—3 feet high, clothed with dense short down and long hairs intermixed.—Roadsides and pastures. P. VI. VII.

*** *Root fusiform annual.*

7. *G. pusillum* (L.); peduncles 2-flowered, pedicels deflexed after flowering, *pet.* bifid *about as long as the* mucronate *sepals*: *claws* slightly ciliated, *caps.* smooth *with adpressed* hairs, *seeds smooth,* l. reniform palmate with 5—7 trifid lobes, *st.* diffuse *downy.*—*E. B.* 385. *G. rotundifolium* Fries.—St. prostrate, clothed only with short down. Fl. small, bluish-purple. Claws of the pet. only slightly ciliated. Fertile anth. 5. Peduncles shorter than the leaves.—Waste places. A. VI.—IX.

8. *G. dissectum* (L.); peduncles 2-flowered, pet. bifid scarcely longer than the awned sepals: claws slightly ciliated, *caps.* smooth *with erect hairs, seeds reticulated,* l. in 5—7 deep laciniated segments with linear lobes, *st.* diffuse *hairy.*—*E. B.* 753. —Fl. small, bluish-purple. L. divided almost to the base, longer than the peduncles.—Waste places. A. VI.—VIII.

9. *G. columbinum* (L.); peduncles 2-flowered, *pet.* obovate *emarginate* with a short obtuse tooth in the notch about as long as the awned sepals: *claws ciliated, caps. smooth with a few minute scattered hairs,* seeds reticulated, l. in 5—7 deep laciniated segments, st. diffuse with adpressed hairs.—*E. B.* 259.—Fl. small, rose-coloured. L. divided almost to their base. *Peduncles longer*

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than the leaves, with very long pedicels.—On gravelly and limestone soils. A. VI. VII.

10. *G. rotundifolium* (L.); peduncles 2-flowered, *pet.* spathulate *entire* obtuse rather longer than the shortly awned sepals: *claws glabrous, caps.* smooth *with spreading hairs, seeds* reticulated, l. reniform in 7 broadly wedge-shaped inciso-crenate segments, st. diffuse pubescent.—*E. B.* 157.—Fl. small, flesh-coloured. Peduncles shorter than the leaves.—Old walls and waste places, rare. A. VI. VII.

11. *G. molle* (L.); peduncles 2-flowered, *pet.* oblong deeply *bifid* scarcely longer than the mucronate sepals: *claws ciliated, caps. transversely wrinkled glabrous, seeds smooth,* l. roundish-reniform in 7—9 deep wedge-shaped segments trifid at the end, st. diffuse pubescent.—*E. B.* 778.—Fl. small, purple. Pubescence very soft.—Dry places. A. IV.—VIII.

12. *G. lucidum* (L.); peduncles 2-flowered, *pet.* obovate *entire*: *claws glabrous* very long nearly equalling the *transversely rugose* pyramidal *calyx, caps. reticulated triply keeled* glandular-hairy at the summit, seeds smooth, l. reniform in 5 obtuse inciso-crenate mucronate segments, st. spreading ascending.—*E. B.* 75.—Fl. small, rose-coloured. St. and l. glabrous and shining, often strongly tinged with red.—Lindley considers his *G. Raii* as most allied to this species; it differs, he says, by its "shaggy calyx and simply keeled fruit," and occurs on the south coast of England.—Walls and hedge-banks. A. V.—VIII.

13. *G. robertianum* (L.); peduncles 2-flowered, pet. obovate entire or slightly emarginate: claws glabrous very long nearly equalling the long-awned hairy and slightly glandular sepals, *caps. transversely wrinkled* downy, seeds smooth, l. ternate or quinate, leaflets stalked trifid inciso-pinnatifid, st. spreading erect.—*E. B.* 1486.—Fl. purple, sometimes white. Cal. with a very few glandular hairs, not transversely rugose.—*β. purpureum*; pet. narrower, sep. glandular-hairy, caps. glabrous and more wrinkled, l. in narrower segments. *G. purpureum* Forst. *E. B. S.* 2640. Possibly a distinct species.—Hedge-banks. *β.* Southern sea-coast. A. V.—IX.

2. Erodium *L'Herit.*

1. *E. cicutarium* (Sm.); st. procumbent hairy, peduncles many-flowered, *claws of the pet. ciliated,* perfect *stam. dilated not toothed below* glabrous, beak hairy, l. pinnate, leaflets sessile pinnatifid cut.—*E. B.* 1768.—Very hairy. Fl. purplish or white. Leaflets very deeply divided, their segments lanceolate or linear, acute. In specimens from Pennard Sands near Swansea the peduncles are mostly 3-flowered and the segments of the leaves much shorter finer and more spreading. In Jersey spe-

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cimens the l. are ovate and short, and their segments short broad and bluntish. *E. pimpinellæfolium* which has a glabrous beak and entire cotyledons ought to be found in England.—Waste ground. A. VI.—IX.

2. *E. moschatum* (Sm.); st. procumbent hairy, peduncles many-flowered, *claws of the pet. not ciliated, perfect stam. toothed at the base* glabrous, beak downy, l. pinnate *leaflets* nearly sessile *ovate unequally cut.*—*E. B.* 902.—Much larger than the preceding and diffusing a strong musky scent when handled.—Waste places, rather rare. A. VI. VII.

3. *E. maritimum* (Sm.); st. prostrate slightly hairy, peduncles 1—2-flowered, pet. very minute, l. simple ovate-cordate stalked lobed and crenate.—*E. B.* 646.—St. often very fleshy. Fl. very small and inconspicuous. Pet. pale red, very minute, often wanting.—Sandy and gravelly places, particularly near the sea, rare. P. V.—IX.

Order XXI. LINEÆ.

Sep. 3—5, persistent, imbricate. Pet. 3—5, twisted in æstivation, clawed, fugitive. Stam. as many as the pet., connected into a hypogynous ring with intermediate teeth (abortive stamens). Ovary with about as many cells and styles as the sepals, stigmas capitate. Caps. generally tipped with the hardened base of the styles, with 4—5 complete dissepiments (of 2 membranes), and 4—5 incomplete dissepiments. Seeds 1 in each spurious cell, pendulous, with albumen.—L. without stipules, alternate.

1 LINUM. Cal. of 5 sepals. Pet. 5. Stam. 5. Caps. with 10 cells and 10 valves.

2. RADIOLA. Cal. of 4 sepals, connected below, deeply trifid. Pet. 4. Stam. 4. Caps. with 8 cells and 8 valves.

1. LINUM *Linn.*

* *Leaves scattered.*

1. *L. angustifolium* (Huds.); *sep. elliptical* pointed 3-nerved, l. linear-lanceolate, *st. numerous.*—*E. B.* 381.—Fl. pale blue. St. 1—2 feet high.—Sandy and chalky places. P. VII. E. I.

*2. *L. usitatissimum* (L.); *sep. ovate* pointed 3-nerved, l. lanceolate, *st. solitary.*—*E. B.* 1357. *St.* 26. 12.—Fl. blue. St. 1—1½ foot high. Sep. ciliated.—*β. crepitans* (Schub.); smaller and more branched, caps. opening with elasticity, seeds paler.—In cultivated fields. A. VII. *Common Flax.*

3. *L. perenne* (L.); *sep. obovate obtuse* obscurely 5-nerved, l. linear-lanceolate, st. numerous, fruitstalks erect.—*E. B.* 40.—Fl. blue. St. erect or decumbent.—In chalky districts. P. VI. VII.

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** *Leaves opposite.*

4. *L. catharticum* (L.) ; sep. elliptical pointed, *l. opposite* obovate-lanceolate.—*E. B.* 382.—Fl. white, small; sep. serrated; pet. acute. St. one or more, slender. Panicle forked, spreading. —In dry pastures. A. VI.—VIII.

2. RADIOLA *Gmel.*

1. *R. millegrana* (Sm.). The only species. *E. B.* 893. *R. linoides* DC., Koch.—St. 1—2 in. high, repeatedly forked, with solitary fl. in the axils as well as at the extremities of the branches. Fl. minute, white. Sep. deeply and acutely 3-cleft, connected below into a tube.—Damp sandy places. A. VII. VIII.

Order XXII. BALSAMINEÆ.

Sep. 5, irregular, deciduous, lower spurred, imbricate in æstivation. Pet. 4, irregular, (fifth abortive,) united in pairs. Stam. 5. Anth. 2-celled, opening at the apex by a longitudinal fissure, more or less connected. Ovary 5-celled. Fr. capsular with 5 elastic valves. Seeds solitary or numerous, pendulous, albumen 0.—L. without stipules. Plant succulent.

1. IMPATIENS. Sep. 3, the lower one cucullate with a spur. Pet. 3, the upper one symmetrical, 2 lateral unequally 2-lobed. Anth. cohering. Caps. of 5 elastic valves, at length spirally rolled inwards.

1. IMPATIENS *Linn.*

1. *I. Noli-me-tangere* (L.) ; l. ovate coarsely serrate, peduncles many-flowered solitary, *spur loosely recurved not emarginate.* —*E. B.* 937. *St.* 5. 15.—Fl. large, yellow spotted with orange. Serratures of the leaves not glandular. St. 1—2 feet high, tumid at the joints.—Damp woody places in mountainous districts. A. VII.—IX. *Yellow Balsam.*

*2. *I. fulva* (Nutt.); l. ovate coarsely serrated, peduncles about 4-flowered solitary, *spur closely reflexed emarginate.*—*E. B. S.* 2794.—Fl. orange-yellow spotted with red. Serratures of the l. with a reflexed glandular tooth. St. 2—3 feet high with tumid joints.—An American plant now *quite* naturalized by the river Wey in Surrey. A. VIII. E.

Order XXIII. OXALIDEÆ.

Sep. 5, equal, persistent, imbricate in æstivation. Pet. 5, equal, often cohering at the base, twisted in æstivation. Stam. 10, more or less monadelphous, those opposite to the pet. longer than the others. Anth. 2-celled, not connected. Ovary 5-celled. Styles 5. Caps. 5—10-valved. Seeds several; testa fleshy, bursting elastically. Embryo straight, in cartilaginous albumen.

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1. Oxalis. Sep. 5, connected below. Pet. 5, often connected below. Stam. 10, monadelphous, 5 outer ones shorter. Styles 5. Caps. oblong.

1. Oxalis *Linn.*

1. *O. Acetosella* (L.); *stemless*, rhizoma creeping toothed, l. ternate, leaflets obcordate hairy, peduncles longer than the leaves with 2 scaly bracts at about the middle.—*E. B.* 762.—Fl. white with purple veins or rarely purple or blue. Cor. about 4 times as long as the calyx.—Woods and shady places. P. V. *Wood Sorrel.*

2. *O. corniculata* (L.); *st. diffuse with procumbent branches* pubescent, l. ternate, leaflets obcordate, *stipules oblong united to the base of the petioles*, peduncles about 2-flowered shorter than the leaves, partial fruitstalks reflexed, root fibrous without scions. —*E. B.* 1726.—Fl. yellow. L. mostly in pairs.—Waste ground in Devon and Cornwall. A. VI.—IX. E.

3. [*O. stricta* (L.); which has st. erect, stipules 0, peduncles 2—8-flowered longer than the l., fruitstalks erect, root with underground scions, is naturalized at Penzance, Corn.; and Ilsington, Devon. B. VII. VIII.]

Subclass II. CALYCIFLORÆ.

Pet. distinct. Stam. perigynous.

Order XXIV. CELASTRINEÆ.

Sep. 4—5, æstivation imbricate. Pet. 4—5, inserted into the margin of a hypogynous fleshy disk. Stam. alternate with the petals, inserted in the disk. Ovary sunk in the disk, more or less connected with it, 3—4-celled; cells 1—2-seeded; ovules erect. Embryo straight.

[1. Staphylea. Cal. 5-parted, coloured, with an urceolate disk at the base. Pet. 5. Stam. 5, inserted round the disk. Styles 2—3. Caps. membranous, 2—3-celled, dehiscing internally. *Seeds* few, *bony, truncate* at the hilum.—Leaves compound.]

2. Euonymus. Cal. flat, 4—5-lobed, with a peltate disk at the base. Pet. 4—5, inserted in the margin of the disk. Stam. 4—5, inserted in the disk. Style 1. Caps. 3—5-celled, 3—5-angled, dehiscence loculicidal. *Seeds* solitary in each cell, *with a fleshy arillus, not* truncate at the hilum. —Leaves simple.

1. Staphylea *Linn.*

[1. *S. pinnata* (L.); l. pinnate, leaflets 5—7, petioles without glands, fl. racemose, styles 2, caps. bladdery.—*E. B.* 1560.—

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Fl. yellowish white.—A very doubtful native. Yorkshire. Kent. "Wild at Kensthwaite hedges near Winandermere." *Mr. F. H. Chorley.* S. VI. *Bladder-nut.*] E.

2. EUONYMUS *Linn.*

1. ***E. europæus*** (L.); pet. oblong, fl. mostly 4-cleft and 4-androus, branches tetragonal smooth and even, l. elliptic-lanceolate minutely serrate, caps. obtusely angular not winged.—***E. B.*** 362. ***St.*** 27. 3.—Arillus inclosing the seed. Fl. greenish-white. Bark green. L. glabrous. Fl. few together forming a small umbel. Fruit rose-coloured.—Hedges and woods. Sh. V. ***Spindle-tree.***

Order XXV. RHAMNEÆ.

Cal. 4—5-cleft, æstivation valvate. Pet. distinct, inserted into the throat of the calyx. Stam. opposite to the pet. and equalling them in number. Ovary wholly or in part superior, 2—3—4-celled, surrounded by a glandular disk. Seeds solitary, erect. Embryo straight. Fruit a capsule or berry.

1. RHAMNUS. Cal. urceolate, 4—5-cleft. Pet. 4 or 5 or sometimes 0, inserted with the stam. on the margin of the tube of the calyx. Fruit fleshy, with 2—4 cells and as many seeds.

1. RHAMNUS *Linn.*

1. ***R. catharticus*** (L.); thorns terminal, ***fl.*** 4-***cleft*** dicecious, petioles much longer than the stipules, ***l. roundish-oval sharply toothed,*** berry with 4 seeds.—***E. B.*** 1629.—***Branches opposite.*** Serratures of the l. incurved, glandular. "Notch in the seeds shut." ***Styles*** 4, united half way up.—Hedges and thickets. Sh. V.—VII. ***Buckthorn.*** E. I.

2. ***R. Frangula*** (L.); spineless, ***fl. 5-cleft*** perfect, ***l. elliptical acuminate*** narrowed below ***entire,*** berry with 2 seeds, style simple. —***E. B.*** 250.—***Branches alternate.*** Fl. in small clusters, greenish-white, small.—Hedges and thickets. Sh. V. VI. ***Alder Buckthorn.*** E. I.

Order XXVI. LEGUMINOSÆ.

Cal. inferior. Sep. 5, more or less combined, odd one anterior. Cor. papilionaceous (in our plants), inserted into the base of the calyx. Pet. 5, odd one superior. Stam. 10 (in our plants), monadelphous or diadelphous. Ovary free, 1-celled. Fruit a legume; placenta on the upper suture; style from the upper suture. Embryo bent over the edge of the cotyledons, or straight. —All our plants have papilionaceous flowers and 10 stamens in one bundle or in two bundles of 9 and 1.

Tribe I. ***LOTEÆ.*** Pod continuous. Cotyledons rising above the ground and becoming green leaves.

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* *Stamens monadelphous.*

1. ULEX. *Cal. of* 2 *parts, the upper with* 3, *the lower with* 2 *teeth,* a bract on each side at the base. *Pod turgid,* few-seeded, scarcely longer than the calyx.

2. SAROTHAMNUS. *Cal.* 2-*lipped, the upper with* 2, *the lower with* 3 *teeth.* Style long, curved, thickened upwards, channeled within. Stigma terminal, capitate, small. *Pod flat.*

3. GENISTA. Cal. 2-lipped, the upper bifid, the lower trifid. *Style subulate,* ascending. *Stigma* terminal, oblique, introrse.

4. ONONIS. *Cal.* 5-*cleft, campanulate,* segments narrow, the lower ones longer. Keel beaked. Style filiform, ascending. Stigma terminal, subcapitate.

5. ANTHYLLIS. *Cal. tubular, inflated,* 5-cleft, segments unequal. *Keel not beaked.* Style filiform. Stigma capitate.

** *Stamens diadelphous, pod* 1-*celled.*

6. MEDICAGO. Cal. with 5 nearly equal teeth. Keel obtuse. Filaments of the stamens filiform. Ovaries curved. Pod 1-celled, falcate or spiral. Seeds 1 or numerous.

7. MELILOTUS. Cal. with 5 nearly equal teeth. Keel obtuse. Filaments filiform. *Ovary straight.* Pod subglobose or oblong, 1-celled, 1—4-seeded, longer than the calyx. Pet. distinct, deciduous.

8. TRIFOLIUM. Cal. with 5 unequal teeth. Keel obtuse. *Filaments slightly enlarged upwards* and more or less united with the claws of the petals. Pod oval, 1—4-seeded, included in the calyx or slightly protruding. *Pet. slightly combined, persistent.*—In *T. ornithopodioides,* which is scarcely a true *Trifolium,* the pod is 8-seeded and the filaments are filiform.

9. LOTUS. Cal. with 5 nearly equal teeth. *Keel* ascending, *with a narrowed point* (beak). Wings connivent at their upper margin. Longer filaments dilated upwards. Style kneed at the base, filiform-subulate. *Pod linear, many-seeded,* 2-valved, imperfectly divided by transverse partitions.

*** *Stamens diadelphous, pod imperfectly* 2-*celled.*

10. OXYTROPIS. Cal. with 5 teeth. *Keel with a narrow straight point.* Pod imperfectly 2-celled, *cells formed by the inflexed margin of the upper suture.*

11. ASTRAGALUS. Cal. with 5 teeth. *Keel obtuse.* Pods imperfectly 2-celled, *cells formed by the inflexed margin of the lower suture.*

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Tr. II. *VICIEÆ*. Pod continuous. Stam. diadelphous. Cotyledons remaining under ground.

12. VICIA. Cal. 5-fid or 5-toothed. *Style filiform, its upper part hairy all over, or bearded on the underside* and at the same time hairy or glabrous. Pods 1-celled, 2-valved.

13. LATHYRUS. Cal. 5-fid or 5-toothed. *Style dilated upwards, plane on the upper side, hairy beneath the stigma.* Pods 1-celled, 2-valved.—L. with tendrils.

14. OROBUS. Cal. 5-fid or 5-toothed. *Style linear or dilated upwards, plane on the upper side, hairy beneath the stigma.* Pods 1-celled, 2-valved.—*L. with an herbaceous point in the place of tendrils.*

Tr. III. *HEDYSAREÆ*. Pod divided transversely into 1-seeded joints.

15. ORNITHOPUS. Cal. elongated, tubular, with 5 nearly equal teeth: 2 upper ones slightly combined and converging. Keel obtuse. *Pod* elongated, compressed, *of many 1-seeded indehiscent joints equally narrowed on both sides at the articulations.*—Apex of the common peduncles bearing a small pinnate leaf just below the flowers.

16. ARTHROLOBIUM. Cal. elongated, tubular, with 5 nearly equal teeth: 2 upper ones combined up to their middle and straight. Keel obtuse. *Pod* elongated, cylindrical, *of many* 1-seeded indehiscent *joints scarcely narrowed at the articulations.*—No leaf at the apex of the peduncles.

17. HIPPOCREPIS. Cal. short, campanulate, with 5 nearly equal teeth: 2 upper ones combined up to their middle. Keel narrowed into a beak. *Pod* elongated, compressed, of *many* 1-seeded *crescent-shaped joints, so that each pod has many notches on one side.*

18. ONOBRYCHIS. Cal. with 5 nearly equal subulate teeth. Keel obliquely truncate, longer than the wings. *Pod* 1-*celled*, compressed, indehiscent, 1-*seeded, upper suture straight, lower curved toothed winged or crested.*

Tribe I. *Loteæ.*

1. ULEX *Linn.*

1. *U. europæus* (L.); cal. shaggy, bracts ovate lax, young l. shaggy beneath furrowed, primary spines strong terete polygonal furrowed minutely scabrous, st. hairy, fl. lateral.—*E. B.* 742.—St. 4—6 feet high, very much branched spreading. Fl. bright yellow, springing from both the primary and secondary spines. Spines branching at their base and up to about half their length,

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not extending beyond the flowers. See *Ann. Nat. Hist.* v. 300. —Heaths. Sh. II.—VI. *Spring Furze, Whin, Gorse.*

2. *U. strictus* (Mack.); cal. shaggy, bracts ovate lax, young l. shaggy beneath thin, primary *spines small slender tetragonal* minutely scabrous, st. hairy, *fl. terminal.*—Plant 1—2 feet high, with upright branches. Fl. rarely produced: in all the specimens that I have seen they are terminal, springing from the summit of the stem, not from the spines, which branch as in *U. europæus* but are peculiarly small. The pet. slightly different in form from the last. Distinguished from both the other species by its peculiar habit. Mr. Cameron of the Birmingham Bot. Gard. has sown the seeds of this plant and obtained only plants exactly like the parent. (Phyt. i. 76.)—In Lord Londonderry's park, Down, Ireland. Sh. IV. I.

3. *U. nanus* (Forst.); cal. finely downy, *bracts very minute adpressed,* young *l. glabrous* ciliated furrowed, primary *spines* slender *terete striated smooth,* st. hairy, fl. lateral and terminal. —*E. B.* 743.—St. procumbent. Primary spines short, slender, spreading, branched at their base only. Fl. half the size of those of *U. europæus,* springing from the primary spines and not extending beyond them.—β. *major* (Bab.); st. erect or ascending 3—6 feet high, primary spines long strong deflexed.—Heaths. Sh. VIII.—XI. *Autumnal Furze.*

2. Sarothamnus *Wimm.*

1. *S. scoparius* (Wimm.). The only species.—*E. B.* 1339. *Spartium* L., *Cytisus* Link.—St. 2—3 feet high, angular, glabrous. L. ternate or simple, leaflets obovate. Fl. axillary, solitary or in pairs, shortly stalked, large, bright yellow. Pods dark brown, hairy at the edges, with numerous seeds. In *Cytisus* the style is subulate and stigma oblique; in *Spartium* the style is subulate and the stigma oblong and attached longitudinally below the apex of the style.—Dry hills and heaths. Sh. V. VI. *Broom.*

3. Genista *Linn.*

1. *G. pilosa* (L.); st. procumbent without thorns, l. obovate-lanceolate obtuse, *stipules ovate blunt,* branches peduncles calyx standard keel and underside of the l. silky, *peduncles* lateral *accompanied by a tuft of leaves, pods hairy.*—*E. B.* 208.—Fl. small, yellow, collected towards the extremity of the branches. St. much branched, furrowed, woody.—Dry sandy and gravelly heaths, rare. Sh. V. E.

2. *G. tinctoria* (L.); st. depressed with erect branches without thorns, l. lanceolate or elliptical hairy at the edges, *stipules minute subulate, fl. racemose,* cor. and *pods glabrous.*—*E. B.* 44.— Branches erect, 1—2 feet high, elevato-striate, glabrous, downy

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above. Fl. yellow. Keel as long as the standard.—*β. prostrata*; st. and branches procumbent, l. ovate or oblong, pods hairy on the back of each valve. *G. humifusa* Dickson MSS. in Herb. Forst.—St. angular, 6—10 in. long.—In pastures and thickets. *β.* Near Kynance Cove, Cornwall. Sh. VII.—IX. *Dyers-weed. Woad.*

3. *G. anglica* (L.); st. ascending *spinous* leafless below, flowering branches unarmed glabrous, l. ovate-lanceolate, *stipules* 0, *fl. solitary* in the axils of the upper l., corolla and pods glabrous. —*E. B.* 132.—St. 1 foot high, round, leafless, with short leafy branches bearing the yellow flowers. Keel longer than the standard. *G. germanica* (L.) has hairy branches and the floral l. reduced to subulate bracts.—Moist peaty heaths. Sh. V. VI. *Needle Whin, Petty Whin.* E. S.

4. Ononis *Linn.*

1. *O. arvensis* (L.); st. procumbent uniformly hairy, fl. axillary solitary stalked, leaflets broadly oblong, *pods* ovate erect *shorter than the calyx.*—*E. B. S.* 2659. O. repens *Koch in St.* 72. 13.—Usually without spines. St. rooting at their base. Seeds tubercular-scabrous.—Barren sandy places. P. VI.—IX. *Trailing Rest-harrow.*

2. *O. antiquorum* (L.?); st. erect or ascending, bifariously hairy, fl. axillary solitary stalked, leaflets oblong, *pods* ovate erect *longer than the calyx.*—*E. B.* 682. O. spinosa *Koch in St.* 72. 11.—Usually spinous. St. mostly erect. Seeds tubercular-scabrous. Is this the true *O. antiquorum* L.? Koch and Reichenbach both describe and figure quite a different plant *with smooth seeds.* See *St.* 72. 12. *Reich. Icon.* 14. *Ann. Nat. Hist.* ii. 95.—Barren places. P. VI.—IX. *Spinous Rest-harrow.* E. S.

3. *O. reclinata* (L.); viscid, pubescent, st. ascending, fl. axillary, pedicels 1-flowered shorter than the l. fl. or pod without bracts, cor. about equal to the calyx, leaflets obovate-cuneate serrated at the lip, stipules ovate, *pods cylindrical reflexed,* seeds 14—18 tuberculated.—*E. B. S.* 2838.—St. 5—6 in. high, much branched.—Sandy places in Galloway and the Channel Isles. A. VII. S.

5. Anthyllis *Linn.*

1. *A. Vulneraria* (L.); herbaceous, l. pinnate, leaflets unequal, heads of fl. in pairs, calyx of 5 ovate pointed teeth.—*E. B.* 104. *St.* 49. 4. 5.—Pod semiorbicular, long stalked, upper suture arched outwards, 1-seeded. St. 6—12 in. high, silky. Root l. simple, oval. Fl. yellow, in terminal pairs of crowded many-flowered heads.—*β. Dillenii*; plant smaller, fl. red. *Dill. Elth.* 320.—Dry pastures. P. VI.—VIII. *Kidney Vetch. Lady's Fingers.*

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6. MEDICAGO *Linn.*

*1. ***M. sativa*** (L.) ; ***racemes*** many-flowered, ***pods*** compressed ***spiral with*** 2 ***or*** 3 ***turns*** downy unarmed, pedicels shorter than the calyx or bract, leaflets obovate-oblong dentate above emarginate mucronate.—*E. B.* 1749. *Mart. Rust.* 48.—St. erect. Pods twisted into a loose open spiral. Fl. yellow or violet.—Hedge-banks and borders of fields, scarcely naturalized. P. VI. VII. *Lucerne.* E. S.

2. ***M. falcata*** (L.) ; ***racemes*** many-flowered, ***pods*** compressed ***sickle-shaped*** downy unarmed, ***pedicels*** shorter than the calyx ***longer than the bract,*** leaflets obovate-oblong dentate above emarginate mucronate.—*E. B.* 1016. *Mart. Rust.* 86. 87.—St. decumbent, slightly hairy. Pods not forming a spiral. Fl. yellow or violet.—Dry banks, rare. P. VI. VII. E.

3. ***M. lupulina*** (L.) ; ***spikes*** many-flowered ***dense oval, pods*** compressed, ***kidney-shaped with a spiral point*** rugged with longitudinal branched prominent veins, stip. obliquely ovate slightly toothed, leaflets roundish-obovate denticulate above emarginate mucronate.—*E. B.* 971.—St. procumbent or ascending, spreading widely. Pods scarcely spiral, glabrous or slightly hairy. Fl. yellow.—Waste ground. A. V.—VIII. *Black Medick.*

4. ***M. maculata*** (Sibth.) ; ***peduncles*** 1—4-***flowered, pods compactly spiral*** compressed consisting of 2 or 3 turns ***veined with*** 4 ***ridges on the edge and a central furrow,*** spines in 2 rows divergent subulate curved, leaflets triangular-obcordate, stip. toothed. —*E. B.* 1616.—Leaflets with a purple spot in the centre. Edge of the pods broad; spines arising from the margin and the ridge next to it on each side, compressed and furrowed on both sides, varying considerably in length.—On a gravelly soil. A. V.—VIII.

5. ***M. minima*** (Lam.) ; peduncles 1—6-flowered, ***pods*** compactly spiral consisting of 4 turns ***smooth with a thin edge,*** spines in 2 rows divergent subulate hooked, leaflets obovate, stip. nearly entire.—*E. B. S.* 2635.—Edge of the pods with 3 ridges, the central one so prominent as to be easily taken for the true margin, no central furrow but the central ridge common to the 2 rows of spines. Sides of the pods smooth. Spines varying considerably in length and the whole plant in hairiness.—In sandy fields, rare. A. V. E.

I have omitted ***M. muricata,*** being convinced from personal observation that no such plant *now* exists "on the sea-bank at Orford."

6. ***M. denticulata*** (Willd.) ; peduncles 2—5-flowered, ***pods*** rather loosely spiral consisting of 2 or 3 turns ***deeply reticulated*** with a thin edge, spines in 2 rows divergent subulate hooked,

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leaflets obcordate, *stip. laciniated.*—*E. B. S.* 2634.—Edge of the pods as in *M. minima.* Spines about equalling the diameter of the pod, whole plant glabrous.—*β. apiculata*; spines very short without hooks, often scarcely longer than their own breadth so as to appear little more than tubercles. *M. apiculata* (Willd.), *Koch, DC.*—On sandy ground near the sea. A. V.—VIII.—E.I.

7. MELILOTUS *Lam.*

1. *M. officinalis* (Lam.); racemes lax, cor. twice as long as the calyx, *wings keel and standard equal, pods* ovate *acute* compressed transversely wrinkled *hairy*, leaflets serrate truncate narrowly ovate, stip. setaceous entire.—*E. B.* 1340.—St. erect, 2—3 feet high. Fl. in lateral racemes, yellow.—Waste places. B.? VI.—VIII. *Melilot.*

2. *M. vulgaris* (Willd.); racemes lax, cor. twice as long as the calyx, *wings and keel equal but shorter than the standard, pods* ovate *obtuse* mucronate reticulate-rugose *glabrous*, leaflets obovate the upper ones oblong serrate obtuse, stip. awlshaped entire.—*M. leucantha* Koch in DC., *E. B. S.* 2689. *M. vulgaris* Koch Syn.—St. erect. Fl. white.—Sandy and gravelly places near the sea, rare. B. VII. VIII.

8. TRIFOLIUM *Linn.*

* *Fl. sessile, cal. with an elevated thickened often hairy line or ring of hairs in its throat, not inflated.*

1. *T. pratense* (L.); *heads* ovate dense *sessile*, cal. 10-nerved hairy not half so long as the corolla: teeth setaceous ciliated, *stip. ovate* abruptly bristle-pointed, leaflets oval emarginate upper ones entire apiculate.—*E. B.* 1770. *St.* 15. 11.—In the cultivated plant the leaflets are usually all quite entire. Teeth of the cal. 5, 4 nearly equal in length to the tube, the lower one twice as long, the mouth with an internal thickened hairy ring within. Heads of fl. sometimes slightly stalked. Fl. purplish, sometimes white. St. erect.—*β. parviflorum*; heads more or less stalked, calyx-teeth as long or longer than the corolla.—Mountainous pastures, fields. *β.* in dry places. P. V.—IX. *Purple Clover.*

2. *T. medium* (L.); *heads* subglobose lax *stalked*, calyx 10-nerved glabrous not half as long as the corolla: teeth setaceous hairy, *stip. linear-lanceolate* acuminate, leaflets elliptical or lanceolate apiculate.—*E. B.* 190. *St.* 15. 13.—Four of the calyx-teeth equal in length to, or rather longer than the tube, the fifth one-third longer, mouth with a thickened hairy ring within. Heads of fl. large. Fl. purplish. St. ascending, zigzag.—Dry elevated pastures. P. VI.—IX.

3. *T. ochroleucum* (L.); heads subglobose dense stalked soli-

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tary terminal, *cal.* 10-nerved *pubescent* about half as long as the corolla: *teeth erect in fruit subulate lower one rather longer than the tube the others two-thirds shorter,* stip. lanceolate-subulate, leaflets elliptic-oblong the lower one emarginate or cordate.—*E. B.* 1224. *St.* 15. 15.—Cal. with acute teeth having 1 strong nerve, mouth with a thickened ring pubescent on its upper side within. St. 1½ foot high, erect. Lower l. on very long stalks. Fl. cream-coloured, at length turning brown.—Dry gravelly soils in the east of England. P. VI. VII. E. S.

[4. *T. incarnatum* (L.); *heads* ovate *at length cylindrical* stalked solitary terminal, cal. 10-nerved hairy not half as long as the corolla: *teeth patent in fruit lanceolate-subulate nearly equal* rather longer than the tube and *shorter than the cor., stip. ovate obtuse,* leaflets obovate retuse or obcordate, st. erect and together with the l. and stip. villose.—*St.* 16. 4.—Fl. reddish purple. Mouth of the calyx hairy.—*β. Molinieri* (R.); plant smaller, leaflets obcordate, fl. yellow.—Naturalized in a few places. *β.* is said to be indigenous near the Lizard Point, Cornwall. A. VI. VII.] E.

†5. *T. stellatum* (L.); *heads globose* stalked terminal, *calyx* 10-nerved hairy: *teeth subulate from a broad base equal longer than the corolla patent in fruit* 3-*nerved and reticulated* throat closed with hairs, stip. ovate rather acute denticulated, *leaflets obcordate,* st. spreading and together with the l. and stip. villose.—*E. B.* 1545. *St.* 16. 5.—Fl. cream-coloured, small. Calyx of the fruit remarkably large, its teeth spreading in a stellate manner. St. short.—Shingly beach between Shoreham and the sea. A. VI. VII. E.

6. *T. arvense* (L.); *heads nearly cylindrical* stalked *very hairy,* cal. 10-nerved: *teeth subulate-setaceous* hairy nearly equal *nerveless* longer than the cor. at length slightly spreading, stip. ovate or lanceolate acuminate, leaflets linear-oblong.—*E. B.* 944. *St.* 16. 3.—St. erect, or in a maritime form (Ray Syn. t. 14. f. 2.) procumbent with globose heads, st. and l. finely hairy. Fl. small, almost concealed by the very hairy calyx. Seeds oval, greenish yellow, radicle not prominent. Throat of the calyx thickened and glabrous within.—Sandy fields. A. VII.—IX. *Hare's-foot Trefoil.*

7. *T. striatum* (L.); heads ovate or oblong sessile terminal and lateral solitary, calyx 10-nerved hairy: *teeth subulate* unequal *straight* mucronate about as long as the cor., *tube ventricose in fruit,* stip. ovate cuspidate, leaflets obcordate or obovate: veins equal and straight at the margins.—*E. B.* 1843. *St.* 16. 6. 7.—St. procumbent, 4—10 in. long and as well as the l. silky. Fl. small. Seeds oval, brownish yellow, radicle not prominent. Throat of the calyx thickened within.—*β. erectum* (Leight.); st.

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erect, heads elongated subconical, cor. longer than the calyx. The seeds of this var. require to be examined.—Dry and sandy places. A. VI. VII.

8. *T. scabrum* (L.); heads ovate sessile terminal and lateral solitary, cal. 10-nerved hairy: *teeth lanceolate* mucronate about as long as the cor. *with* 1 *strong prominent nerve* at length patent, *tube cylindrical in fruit,* stip. ovate cuspidate, leaflets obovate: veins thickened and curved at the margins.—*E. B.* 903.—St. procumbent, spreading. Fl. small. Cal. of the fruit very rigid. Seeds oblong, reddish yellow, radicle not prominent. Throat of the cal. thickened within.—Dry sandy places. A. V.—VII.

†9. *T. Bocconi* (Savi); *heads oblong-ovate* sessile terminal usually 2 together, cal. 10-nerved hairy: teeth lanceolate-subulate mucronate about as long as the cor. with 1 strong prominent nerve erect: tube cylindrical in fruit, *stip. oblong with a long subulate point,* leaflets oblong-obovate in the lower leaves roundish-obovate: veins equal and straight at the margins, seeds with the radicle slightly prominent.—St. 2—6 in. high, erect. Fl. small, pale yellow. Seeds oval, brownish yellow. Throat of the calyx hairy within. Heads dense, somewhat conical. —In dry places, very rare. Cagewith, Cornwall. A. VII. E.

10. *T. maritimum* (Huds.); *heads ovate-globose* stalked terminal, calyx strongly nerved: *teeth ciliated at first subulate erect* shorter than the corolla *afterwards broad leafy acute spreading 1-nerved the lower one longest and 3-nerved,* tube hairy above cylindrical in fruit, *stip. broadly subulate very long,* leaflets oblong-obovate.—*E. B.* 220.—St. spreading, usually procumbent. Fl. pale red, small. Throat of the calyx with an elevated thickened ring, hairy on its upper side, within.—Muddy salt marshes. A. VI. VII.

** *Fl. sessile; throat of the calyx naked within; heads few-flowered, at length producing thick stellated fibres (abortive calyces) from their centre which ultimately fold over the fruit.*

11. *T. subterraneum* (L.); heads 2—5-flowered erect deflexed in fruit, calyx glabrous: teeth filiform hairy nearly equal shorter than the corolla, tube inflated in fruit and at length split longitudinally, *abortive calyces numerous slender stellate with 5 points,* stip. ovate pointed, leaflets obcordate.—*E. B.* 1048.—St. prostrate and as well as the l. hairy. Fl. white, considerably longer than the calyx. The curious abortive calyces are remarkably characteristic of this species.—Dry gravelly places. A. V. VI.

*** *Fl. sessile or stalked; throat of the calyx naked within, not inflated, pods 2—4—8-seeded.*

12. *T. glomeratum* (L.); *heads* globose *sessile* terminal and axillary, *calyx* sessile 10-nerved: *teeth ovate very acute veiny*

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nearly equal reflexed, stip. ovate taper-pointed, leaflets obcordate the upper ones obovate, seeds 2.—*E. B.* 1063.—St. procumbent. Fl. rose-coloured, standard persistent striated. Seeds transversely ovate-reniform, radicle prominent.—Gravelly places near the sea. A. VI.

13. *T. strictum* (L.); heads globose "long-stalked" axillary, calyx sessile 10-nerved: teeth subulate unequal somewhat spreading, stip. broad obtuse serrated, leaflets obovate the upper ones oblong, seeds 2.—St. erect. Fl. "reddish." Pods slightly exserted, seeds ovate, radicle slightly prominent.—Jersey. *Mr. J. Woods.* A single dwarf specimen found in 1842 by *Mr. W. W. Newbould.* A. VIII. O.

14. *T. suffocatum* (L.); heads roundish sessile axillary, *cal.* sessile: *teeth lanceolate* acute falcate *recurved* longer than the corolla, stip. ovate pointed, leaflets obcordate, seeds 2.—*E. B.* 1049.—St. short, usually buried in the sand. Fl. small, erect. Cal. scarcely striated. Seeds roundish, radicle prominent.—Sandy sea-shores, rare. A. VI. E.

15. *T. repens* (L.); heads roundish, *peduncles axillary longer than the leaves, fl. stalked at length deflexed,* calyx glabrous half as long as the corolla: teeth lanceolate unequal erect, stip. ovate abruptly cuspidate, leaflets obovate or obcordate, *seeds* 4, *stems creeping.*—*E. B.* 1769. *St.* 15. 6.—Fl. white, standard striated. L. often with a dark spot at their base. Pod included. In damp seasons the pod is often protruded in the form of a horn or changed into a small leaf.—Meadows and pastures. P. V.—IX. *Dutch or White Clover.*

16. *T.? ornithopodioides* (L.); *fl. about* 3 *together stalked, clusters stalked* axillary, calyx glabrous: teeth slender acute nearly equal erect, stip. ovate with long taper points, leaflets obcordate, *seeds* 8.—*E. B.* 1047.—St. prostrate. Fl. small, pet. all distinct. Pod. exserted, compressed, obtuse, transversely furrowed, slightly hairy, curved, longer than the calyx, opening with 2 valves. This plant is scarcely a *Trifolium* or *Trigonella.*—Dry gravelly places. A. VI. VII.

**** *Fl. sessile, throat of the calyx naked within inflated after flowering and arched above.*

17. *T. fragiferum* (L.); heads globose, peduncles axillary longer than the leaves, *involucre multifid as long as the calyx,* calyx of the fruit membranous reticulated downy, *stip. ovate with a long attenuated point,* leaflets obovate emarginate minutely serrate, seeds 2.—*E. B.* 1050. *St.* 16. 8.—St. creeping. Fl. purplish red. Heads large, remarkable when in fruit for their curious calyces. Pod included.—Damp pastures. P. VII. VIII.

[18. *T. resupinatum* (L.); heads hemispherical at length glo-

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bose, peduncles axillary equalling the leaves, *bracts minute*, calyx of the fruit membranous reticulated woolly, *stip. subulate-lanceolate from an ovate base*, leaflets obovate minutely serrate, seeds 2.—*E. B. S.* 2789. (bad) *St.* 16. 9.—St. prostrate or ascending. Fl. small, resupinate. Pod included.—Meadows at the mouth of the Avon below Bristol, but now lost. Poole, Dorset. A. VII.] E.

***** *Fl. stalked, throat of the calyx naked within not inflated, cor. persistent, standard deflexed and covering the pod.*

19. *T. procumbens* (L.); *heads oval dense with about* 40 *fl.*, peduncles axillary as long or longer than the leaves, fl. at length reflexed, style much shorter than the pod, stip. ovate acute entire, leaflets obovate emarginate, central petiole longest, seeds elliptical radicle scarcely prominent.—*E. B.* 945. *St.* 15. 15.—Primary stem erect, branches procumbent or ascending. Pod pointed at both ends. Peduncles sometimes shorter at others longer than the leaves. Fl. yellow. Radicle causing a slight irregularity in the otherwise regularly elliptical seeds. *T. patens* (Schreb.), *T. parisiense* (DC.), which has a style equal in length to the pod, elliptical seeds with the radicle forming a marked projection throughout half the length of one side, and the stip. half-cordate and usually denticulate, will probably be found in England.—Dry pastures. A. VI.—VIII.

20. *T. minus* (Sm.); *heads close about* 12-*flowered*, peduncles axillary, pedicels very short, fl. at length reflexed, *standard* furrowed *truncate* quite covering the pod, style much shorter than the pod, stip. ovate, leaflets obcordate intermediate one-stalked. —*E. B.* 1256.—Dry places. A. VI.—VIII.

21. *T. filiforme* (L.); *fl. few* (3—5) *in lax racemes*, peduncles axillary, pedicels as long as the calyx-tube, fl. at length reflexed, *standard* not furrowed "*deeply emarginate*" scarcely covering the pod.—*E. B.* 1257.—Standard much narrower in proportion than in *T. minus*. These two plants are very closely allied, but I quite agree with Mr. W. Wilson (Phyt. i. 293.) in believing that they are distinct species.—Dry places. A. VI. VII.

9. Lotus *Linn.*

1. *L. corniculatus* (L.); claw of the standard obovate transversely vaulted, *calyx-teeth straight in the bud* subulate from a triangular base as long as their tube but shorter than the corolla: *points of the* 2 *upper ones converging*, beak springing from the middle of the end of the pod, *heads* 5—10-*flowered.*—*E. B.* 2090.—Glabrous or slightly hairy. St. ascending. Leaflets obovate. Stip. ovate. Angle between the 2 upper calyx-teeth rounded.—*β. villosus* (Ser.); st. l. and calyx hairy.—*γ. crassifolius* (Pers.); pilose, st. cæspitose, leaflets obovate fleshy, stip.

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ovate.—δ. *tenuis* (Bab.); glabrous or slightly hairy, st. filiform elongated procumbent or ascending, leaflets linear or linear-obovate, stipules half-ovate.—*E.B.S.*2615. L. tenuis *Sm.*—See *Ann. Nat. Hist.* ii. 260.—Pastures, dry banks, &c. P. VII. VIII.

2. *L. major.* (Scop.); claw of the standard linear, *calyx-teeth spreading like a star in the bud* subulate from a triangular base as long as their own tube but much shorter than the corolla: *two upper ones diverging,* beak springing from the upper suture of the pod, *heads* 8—12-*flowered,* leaflets obovate, stip. roundish-ovate. *E. B.* 2091.—Hairy. St. usually erect, 1—3 feet high. Angle between the 2 upper calyx-teeth acute.—β. *glabriusculus* (Bab.); glabrous, the margins and nerves of the l. stip. bracts and sep. ciliated, st. erect or procumbent.—In damp places. β. on drier spots. P. VII. VIII.

3. *L. angustissimus* (L.); claw of the standard linear, calyx-teeth straight in the bud subulate as long as their own tube shorter than the corolla, beak straight springing from the upper suture of the *linear pod* which is 6 *times longer than the calyx, head about* 2-*flowered.*—*E. B.* 925. *L. angustissimus* (L.!), *L. diffusus* (Ser.)—Peduncle of the fl. as long as the l. of the fr. twice as long, leaflets and stip. ovate-lanceolate acute, st. procumbent.—β. *seringianus* (Bab.); peduncle of the fl. and fr. as long as the leaves, leaflets obovate-oblong, stip. ovate acute, st. ascending. *L. angustissimus* (Ser.).—South of England near the sea. A. VII. VIII. E.

4. *L. hispidus* (Desf.); claw of the standard subulate, calyx-teeth straight in the bud subulate longer than their own tube shorter than the petals, beak elongate setaceous bent downwards springing from the middle of the end of the *rugose terete pod* which is *twice as long as the calyx, heads few* (3—4) *flowered,* leaflets obovate-lanceolate, stip. half-cordate, st. procumbent.—*E. B. S.* 2823.—Near the sea in Devon and Cornwall. A. VII. VIII. E.

10. Oxytropis *DeCand.*

1. *O. uralensis* (DC.); stemless, leaflets ovate acute in about 12 pairs, *peduncles* longer than the leaves *erect silky,* bracts as long as the calyx, *pods* erect ovate-oblong inflated *silky* 2-*celled.*—*E. B.* 466.—Root, or more correctly stem, woody, branched. Pods abrupt with a very oblique acute point. Fl. bluish purple.—Dry hilly pastures in Scotland. P. VII. S.

2. *O. campestris* (DC.); st. short procumbent, leaflets lanceolate in about 12 pairs, *peduncles* rather longer than the l. *ascending hairy,* bracts as long as the calyx, *pods* erect ovate inflated *hairy imperfectly* 2-*celled.*—*E. B.* 2522. *St.* 19. 12.—Root woody, producing short procumbent stems. Pods narowed upwards with a slightly oblique point. Fl. yellowish tinged with purple.—Clova Mountains. P. VII. S.

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11. ASTRAGALUS *Linn.*

1. *A. hypoglottis* (L.); st. prostrate, *stip. combined*, leaflets blunt in 8—10 pairs, spikes ovate, *peduncles longer than the leaves*, *pods* ovate hairy "stalked in the calyx" *erect.*—*E. B.* 274.—Stip. quite combined into one leaflet opposite to the leaves. St. a few inches long, slender. Leaflets small. Fl. in rather large heads, ascending, purple.—Chalky and gravelly places. P. VI. VII. E. S.

2. *A. alpinus* (L.); st. procumbent, *stip.* ovate *free*, leaflets elliptical blunt in 10—12 pairs, *spikes capitate*, peduncles as long as the leaves, *pods* oblong hairy narrowed at both ends stalked in the calyx *pendulous.*—*E. B. S.* 2717. *St.* 19. 13.—Stip. sometimes slightly connected at the base. St. elongated, slender. Fl. few, drooping, white tipped with purple.—Lofty mountains. Glen Dole, Clova. Little Craigindal, Braemar. P. VII. S.

3. *A. glycyphyllos* (L.); st. prostrate, stip. ovate-lanceolate free, leaflets ovate in 5—6 pairs, *spikes ovate*, peduncles much shorter than the leaves, *pods linear incurved erect glabrous.*—*E. B.* 203.—St. 2—3 feet long, scarcely branched. Fl. in short dense spikes, dull yellow. Pods an inch long.—Thickets on a chalky or gravelly soil. P. VI.

Tribe II. *Vicieæ.*

12. VICIA *Linn.*

* *Upper part of the style hairy all over; peduncles elongated, few-flowered; cal. not gibbous at the base on the upper side.*

1. *V.*[1] *hirsuta* (Koch); *peduncles* 2—6-*flowered* about as long as the leaves, leaflets in 6—8 pairs linear-oblong truncate mucronate, calyx-teeth equal as long as their tube the 2 upper ones converging, *pods oblong* 2-*seeded hairy.*—*Ervum* Sm. *E. B.* 970. *St.* 32. 12.—Stip. 2-lobed, outer lobe trifid with setaceous segments, inner lanceolate. Fl. small, pale blue, standard entire. Calyx-teeth subulate. Style short, from the upper suture of the pod, curved downwards. Seeds orbicular, compressed, red with darker spots, smooth.—Mr. Borrer found a few specimens in the Isle of Wight with 1—2-flowered peduncles and glabrous pods in company with the usual form of the species, they are the β. *angustifolia* (Fries).—Corn-fields and hedges. A. VI.—VIII. *Hairy Tare.*

2. *V. tetrasperma* (Koch); *peduncles* 1—2-*flowered* about as long as the leaves, *leaflets* linear-oblong *blunt* mucronate in 4—6

[1] The plants contained in this section are referred to *Vicia* instead of *Ervum*, from their style having exactly the same structure as that of several true species of *Vicia* and not that of *Ervum*.

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pairs, calyx-teeth unequal shorter than their tube the 2 upper ones shortest "diverging," *pods linear-oblong 4-seeded glabrous.* —*Ervum* Sm. *E. B.* 1223. *St.* 32. 14.—Stipules half-arrowshaped. Fl. small, pale blue; standard with blue streaks, emarginate. Calyx-teeth elongate-triangular. Style long, from the middle of the apex of the pod, deflexed. Seeds 3—5, globose, dull brown, slightly rough; *hilum oblong.*—Fields and hedges. A. VI.—VIII. *Smooth Tare.*

3. *V. gracilis* (Lois.); peduncles 1—4-flowered at length twice as long as the leaves, *leaflets* linear *acute* in 3—4 pairs, calyx-teeth unequal shorter than their tube the 2 upper ones shortest, *pods* linear 6—8-*seeded* glabrous.—*Loisel. Fl. Gall. t.* 12. Ervum *Hook., Bab. Fl. Bath.* 74.—Stip. half-arrowshaped. *Fl. twice as large as those of V. tetrasperma,* pale blue; standard emarginate. Calyx-teeth elongate-triangular. Style from the upper suture of the pod, decurved. Seeds globose variegated with dark brown and yellow, smooth; *hilum short, oval,* half as long as that of the last.—Corn-fields and hedges. Near Bath. Isle of Wight. Kent. A. VI.—VIII. E.

** *Upper part of the style hairy all over; peduncles elongated, many-flowered; calyx gibbous at the base on the upper side.*

4. *V. sylvatica* (L.); peduncles longer than the leaves, leaflets elliptical obtuse mucronate in about 8 pairs, *stip.* lunate *deeply toothed at the base: teeth setaceous, calyx-teeth* shorter than their tube *subulate.*—*E. B.* 79. *St.* 31. 3.—St. many feet long, climbing by their branched tendrils. Fl. numerous, cream-coloured and streaked with blue. Hilum extending about half round the seed.—Woods and thickets. P. VII. VIII. *Wood Vetch.*

5. *V. Orobus* (DC.); peduncles ultimately longer than the leaves, leaflets ovate-oblong or ovate-lanceolate mucronate in numerous (7—10) pairs, *stip.* half-arrowshaped *slightly toothed at the base, calyx-teeth* much longer than their tube, 2 *upper ones triangular,* the others triangular-subulate.—Orobus sylvaticus *E. B.* 518.—St. ascending, 1—1½ foot long. Tendrils reduced to a short slender point to the petiole. Fl. numerous, cream-coloured streaked with purple. Hilum extending through about ⅓ of the circumference of the seed.—Rocky woods. P. V. VI.

*** *Style bearded below the stigma, in other respects glabrous or uniformly hairy all over in its upper part; calyx gibbous at the base on the upper side.*

† Peduncles elongated, many-flowered.

6. *V. Cracca* (L.); leaflets lanceolate mucronate silky in about 10 pairs, *stip.* half-arrowshaped *entire,* calyx-teeth shorter than their tube, upper pair minute, the others subulate, standard but

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little longer than the keel and sinuated at about the middle of each side, pods linear-oblong smooth.—*E. B.* 1168. *St.* 31. 6. —St. 3—4 feet long. Fl. blue variegated with purple. "Seeds subglobose, black. Hilum linear, extending half round the seed." Upper part of the style hairy all over.—Hedges. P. VI.—VIII.

†† Peduncles few-flowered.

7. *V. bithynica* (L.); peduncles shorter than the leaves, *leaflets* 4 *in the lower*, 2 *in the upper leaves, elliptic-lanceolate mucronate or linear-lanceolate acute, stip.* half-arrowshaped toothed, calyx-teeth longer than their tube lanceolate-subulate, *pods* linear-oblong *hairy.*—*E. B.* 1842. *St.* 32. 5.—St. 12—18 in. long. Fl. almost always solitary, purple. "Seeds globose, speckled with black and grey; hilum oval." Upper part of the style hairy all over.—Bushy places on a gravelly soil. P. VII. VIII.—E.

8. *V. sepium* (L.); *fl.* 4—6 *in small axillary nearly sessile clusters*, leaflets in 4—8 pairs ovate obtuse mucronate gradually smaller upwards on the petiole, stip. half-arrowshaped undivided or lobed, *calyx-teeth unequal* shorter than their tube, 2 upper ones curved upwards, pods linear-oblong glabrous.—*E. B.* 1515. *St.* 31. 16.—St. about 2 feet high. Fl. purplish. Calyx hairy. "Seeds globose, speckled with black and grey; hilum linear, extending through about ⅔ of the circumference." Upper part of the style nearly or quite glabrous, bearded. L. more or less hairy.—*β. montana* (Koch ?); leaflets ovate-lanceolate truncate. —Woods and hedges. *β.* Hoy, Orkney. P. VI.—VIII.

9. *V. lævigata* (Sm.); *fl. solitary axillary*, leaflets elliptic-oblong rounded mucronate in 4 pairs, stip. cloven, *calyx-teeth nearly equal as long as the tube* subulate, *standard glabrous, pods* compressed oblong *glabrous.*—*E. B.* 483.—St. suberect, 3—4 in. to 1 foot long. Fl. pale purple. Seeds oblong, brown, attached by one end. I have not seen specimens of this plant and have drawn the character from Smith's figure and description.—On the pebbly beach at Weymouth. P. VII. VIII. E.

10. *V. hybrida* (L.); fl. solitary axillary, leaflets obovate emarginate apiculate in 5—7 pairs, stip. half-arrowshaped cut, *calyx-teeth unequal spreading* subulate *longer than their tube, standard hairy, pod* ovate-oblong *hairy.*—*E. B.* 482. *St.* 32. 3.—St. ascending, 1 foot long. Fl. reddish yellow. Hairs on the pods simple. "Seeds round with a short hilum." I have seen no native specimens.—On Glastonbury Tor Hill. P. VI. VII. E.

11. *V. lutea* (L.); fl. solitary axillary, leaflets elliptic-lanceolate acute or rounded at the end apiculate in 5—8 pairs, stip. ovate pointed coloured *simple or with one patent lobe, calyx-teeth unequal,* upper ones very short and curved upwards, lower one longer than the tube, *standard glabrous,* pods elliptic-oblong hairy.—*E. B.* 481. *St.* 31. 13.—St. procumbent, 1—2 feet long.

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Fl. sulphur-coloured. Hairs on the pods with a bulbous base. Seeds round, compressed, with a short hilum. L. varying greatly in hairiness.—Pebbly ground near the sea. P. VI.—VIII.—E. S.

12. *V. sativa* (L.); *fl. axillary solitary or in pairs*, leaflets in 5—7 pairs elliptic-oblong retuse or obcordate-mucronate, the upper ones narrower or linear truncate mucronate, stip. half-arrow-shaped toothed, *calyx-teeth equal* lanceolate-subulate long equalling their tube, standard glabrous, *pods linear slightly silky*, seeds globose smooth.—Seeds slightly compressed; hilum linear, occupying about ⅓ of the circumference.—*α. sativa* (DC.); leaflets all elliptic- or obovate-oblong, the lower ones shorter and broader, fl. usually in pairs, pods mostly erect, st. 1—1½ foot high. *V. sativa* Sm. *E. B.* 334. *St.* 31. 10.—*β. angustifolia*; leaflets of the upper l. linear-lanceolate, lower ones obovate retuse or obcordate, fl. solitary or in pairs, st. slender. *V. angustifolia* Sm. *E. B. S.* 2614. *St.* 31. 11.—*γ. Bobartii*; leaflets of the upper l. linear truncate or retuse, fl. solitary, st. prostrate. *V. Bobartii* (Forst.) *E. B. S.* 2708.—Cultivated ground. *β* and *γ* in dry gravelly or sandy places. A. V. VI. *Common Vetch.*

**** *Style bearded below the stigma; calyx not gibbous at the base.*

13. *V. lathyroides* (L.); fl. axillary solitary, leaflets in 2—3 pairs obovate or oblong retuse mucronate, calyx-teeth subulate straight as long as their tube, pods linear glabrous, *seeds nearly cubical tubercular*, hilum short elliptical.—*E. B.* 30. *St.* 31. 12. —St. procumbent, 3—5 in. long. Fl. small, purple.—Dry gravelly and sandy places. A. V. VI.

13. LATHYRUS *Linn.*

1. *L. Aphaca* (L.); peduncles single-flowered, *petioles leafless forming tendrils, stip. very large* leaf-like cordate-sagittate.—*E. B.* 1167.—St. weak climbing. Fl. yellow, on long stalks. Remarkable for its total want of l. which are replaced by the large stipules. Rarely 1 or 2 lanceolate leaflets may be found. Pods somewhat cylindrical; seed smooth, compressed.—Sandy and gravelly fields, rare. A. V.—VIII. E.

2. *L. Nissolia* (L.); peduncles 1—2-flowered, *petioles leaflike* linear-lanceolate *without l. or tendrils, stip. minute* subulate.—*E. B.* 112.—St. mostly erect. L. closely resembling those of grasses. Fl. purple, on long stalks. Pods cylindrical; seeds tubercular, round; hilum small, oval.—Bushy grassy places, rare. A. VI. E.

3. *L. hirsutus* (L.); peduncles 2-flowerered, l. of one pair of *linear-lanceolate leaflets*, pods hairy, *seeds* globose *tubercular*.—*E. B.* 1255.—St. winged, climbing to the height of 1 or 2 feet.

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Pods linear-oblong, covered with hairs having bulbous bases. Fl. sometimes solitary, pale blue with a crimson standard. Hilum oblong.—Rare. Essex. Somerset. A. VI. VII. E.

4. *L. pratensis* (L.); *peduncles many-flowered*, l. of one pair of lanceolate mucronate slightly silky leaflets, stip. arrowshaped, *calyx-teeth* unequal *subulate*, upper ones shorter converging, pods obliquely veined, seeds globose smooth.—*E. B.* 670.—St. 2—3 feet high, climbing, acutely angular not winged. Pods linear-oblong. Fl. racemose, drooping, bright yellow. *Hilum small*, oblong.—Moist meadows and pastures. P. VII. VIII.

5. *L. sylvestris* (L.); *st. winged*, peduncles many-flowered, l. of one pair of *linear-lanceolate or lanceolate leaflets*, stip. half-arrowshaped narrow, *calyx-teeth* unequal *triangular-subulate*, 2 upper ones short, pods reticulated with veins, *seeds* compressed smooth *half surrounded by the hilum.*—*E. B.* 805.—St. climbing to the height of 5—6 feet. Pods linear-oblong, curved. Fl. greenish yellow variegated with purple. Broader-leaved varieties often pass for *L. latifolius*.—Woods and thickets. P. VII.—IX.—E. S.

*?6. *L. latifolius* (L.); st. winged, peduncles many-flowered, l. of one pair of *elliptical pointed leaflets*, stip. half-arrowshaped triangular-ovate broad, calyx-teeth unequal, "pods reticulated with veins, seeds tubercular-rugose ½ *surrounded by the hilum.*" —*E. B.* 1108.—St. climbing to the height of 5 or 6 feet. "Pods linear-oblong." Fl. purplish rose-colour, large.—A very doubtful native. P. VII. VIII. E. S.

7. *L. palustris* (L.); st. winged, peduncles many-flowered, l. of 2 *or* 3 *pairs of linear-lanceolate acute leaflets*, stip. half-arrowshaped lanceolate, calyx-teeth unequal, "pods linear-oblong, seeds round compressed smooth ¼ surrounded by the hilum."—*E. B.* 169.—St. 2—3 feet high. Fl. bluish purple.—Boggy meadows, rare. P. VI. VII. E. I.

8. *L. maritimus* (Big.); *st. angular not winged*, peduncles many-flowered, l. of 3—8 *pairs of oval leaflets, stip. large oval cordate-hastate*, calyx-teeth unequal, pods oblong obliquely reticulated, seeds globose ¼ surrounded by the hilum.—*Pisum* Sm. *E. B.* 1046.—St. prostrate. Leaflets large, obtuse but apiculate; petioles often recurved. Fl. purple, variegated.—*β. acutifolius*; leaflets elliptic-lanceolate acute, petioles straight, stems slender, straggling.—Pebbly sea-shores, rare. *β.* Unst, Shetland. P. VII. VIII. *Sea Pea.*

14. Orobus *Linn.*

1. *O. tuberosus* (L.); leaflets oblong or lanceolate blunt apiculate in 2—3 pairs, stip. half-arrowshaped broad, *st. simple* erect *winged.*—*E. B.* 1153. *St.* 21. 5.—Fl. purple, variegated with red and blue. Pods linear. Root tuberous.—*β. tenuifolius*; l. linear.—Woods and thickets in hilly countries. P. VI. VII.

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2. *O. niger* (L.); leaflets oblong-lanceolate or oblong more or less rounded at the end and apiculate in 3—6 pairs, stip. linear-lanceolate acute the lower ones half-arrowshaped, *st. branched* erect angular *not winged.*—*E. B. S.* 2788.—Whole plant becomes quite black in drying. Fl. variegated with red blue and purple. Pods linear. Seed oblong elliptical, dark brown, perfectly smooth.—Rocky woods in Scotland, rare. P. VI. VII.—S.

Tribe III. *Hedysareæ.*

15. Ornithopus *Linn.*

1. *O. perpusillus* (L.); peduncles longer than the leaves, calyx-teeth triangular acute ¼ the length of their tube, beak as long as a joint of the pod.—*E. B.* 369.—A small prostrate plant, 3—12 in. long. L. with 5½—12½ pairs of elliptical downy leaflets. Fl. small; calyx hairy, cor. white with crimson veins. Pods curved, joints beadlike wrinkled lengthwise. A minute scale at the base of each pedicel.—Dry sandy and gravelly places. A. V.—VII. *Birdsfoot.*

16. Arthrolobium *Desv.*

1. *A. ebracteatum* (DC.); peduncles about as long as the l. 2—4-flowered, stip. minute distinct, l. pinnate with many pairs of elliptic-oblong leaflets, the lowest pair remote from the stem. —*E. B. S.* 2844.—St. prostrate filiform. Fl. small, yellow, standard red externally. Pod curved upwards, joints cylindrical rugose. A minute scale at the base of each pedicel but no leafy bract.—Channel and Scilly Islands. A. VI. VII. E.

17. Hippocrepis *Linn.*

1. *H. comosa* (L.); pods umbellate, their joints rough curved neither dilated nor bordered glabrous, peduncles longer than the leaves.—*E. B.* 31.—St. procumbent, often a foot long. Fl. yellow. Leaflets 7—13, obovate, obtuse or emarginate, apiculate. —Dry chalky banks. P. V.—VIII. *Horseshoe Vetch.* E.

18. Onobrychis *Gaert.*

1. *O. sativa* (Lam.); wings shorter than the calyx, keel about as long as the standard, st. ascending, pods with reticulated spinous elevations on the disk and short sharp flat teeth on the lower suture.—*E. B.* 96. *Mart. Rust.* 47. *St.* 19. 10.—St. often 2 feet long, recumbent. Fl. in long dense terminal racemes, crimson, variegated. Tube of the calyx silky, short; teeth very long. Leaflets elliptic-oblong, mucronate, entire, glabrous above, in about 12½ pairs.—On chalky and limestone hills. P. VI. VII. *Saintfoin.* E. S.

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Order XXVII. ROSACEÆ.

Cal. 4—5-parted, lined with a disk below, odd lobe superior. Pet. 5, equal. Stam. usually indefinite. Carp. several or solitary, distinct or combined with each other or with the calyx. Styles distinct, often lateral. Fruit various. Seeds nearly without albumen, embryo straight.—L. alternate, usually compound, with stipules.

Tribe I. *AMYGDALEÆ*. Fruit a solitary drupe; seeds 1—2, pendulous. Cal. deciduous.

1. PRUNUS. Drupe fleshy, indehiscent. Putamen smooth or sulcated.

Tr. II. *SPIRÆÆ*. Fr. formed of several follicles; seeds 1—6, suspended from the inner edges of the follicles. Cal. persistent.

2. SPIRÆA. Cal. 5-cleft. Stam. numerous, inserted along with the pet. on a disk adhering to the calyx. Follicles 1 or more, usually distinct. Seeds 2—6.

Tr. III. *DRYADEÆ*. Fr. formed of small dry (in *Rubus* succulent) nuts, few or numerous, and then inserted on a fleshy or succulent receptacle. Cal. persistent.

* *Attachment of the seed distant from that of the style, radicle inferior.*

3. DRYAS. *Cal.* 8—9-cleft, *in one row*. Pet. 8—9. Stam. numerous. Fr. of numerous small nuts, tipped with the persistent hairy *styles* which are *straight at the extremity*, aggregated on a dry receptacle. Seed ascending.

4. GEUM. *Cal.* 10-cleft, *in* 2 *rows*, the outer parts smaller. Pet. 5. Stam. numerous. Fr. of numerous small nuts, tipped with the persistent *jointed styles hooked at the joint*, aggregated on a dry receptacle. Seed ascending.

** *Attachment of the seed near to that of the style, radicle superior.*

5. SANGUISORBA. Fl. perfect. Cal. 4-cleft, with 2 or 3 external scales at its base, tube quadrangular. Pet. 0. *Stam.* 4, opposite to the segments of the calyx. Nuts 2, included in the dry tube of the calyx. Style terminal. Seed suspended.

6. POTERIUM. Fl. monœcious or polygamous. Cal. 4-cleft, with 3 external scales at its base, tube quadrangular. Pet. 0. *Stam.* 20—30. Nuts 2—3, included in the dry tube of the calyx. Style terminal. Seed suspended.

7. AGRIMONIA. *Calyx* 5-*cleft, without external scales*; *tube turbinate, armed with hooked bristles* above and contracted at

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the throat. *Pet.* 5. *Stam.* 15, inserted with the pet. into a glandular ring in the throat of the calyx. Nuts 2, included in the dry tube of the calyx. Style terminal. Seed suspended.

8. ALCHEMILLA. *Cal.* 8-*parted*, the alternate parts smaller; tube obconical, contracted at the throat. *Pet.* 0. *Stam.* 1—4, inserted into a ring in the throat of the calyx and opposite to the smaller segments. *Style from near the base of the nut.* Seed ascending.

9. SIBBALDIA. *Cal. concave*, 10-parted, in 2 series, 5 exterior parts smaller. *Pet.* 5. *Stam.* 5. Style lateral. *Fr. of* 5—10 *small nuts* placed on a dry receptacle. Seed ascending.

10. POTENTILLA, Cal. concave, 8—10-parted, in 2 rows, 5 exterior parts smaller. Pet. 4—5. *Stam. numerous.* Style lateral or nearly terminal. *Fr. of numerous small nuts placed upon a flattish dry receptacle.* Seed pendulous or ascending. Radicle superior.

11. COMARUM. Cal. cor. stam. and pistils as in *Potentilla. Receptacle ultimately large fleshy and spongy, persistent.* Style lateral near the summit of the nut. Seed pendulous.

12. FRAGARIA. Cal. cor. stam. and pistils as in *Potentilla. Receptacle large succulent pulpy deciduous.* Style lateral near the base of the nut. Seed ascending.

13. RUBUS. *Cal.* concave or flattish, 5-*parted.* Pet. 5. Stam. numerous. Styles nearly terminal. *Carp. numerous, succulent, drupaceous, placed upon a hemispherical or conical spongy receptacle.* Seed pendulous.

Tr. IV. *ROSÆÆ.* Fr. formed of numerous small dry nuts inclosed in the fleshy tube of the calyx.

14. ROSA. *Cal.* urceolate, contracted at the mouth, *ultimately fleshy*, 5-fid. Pet. 5. Stam. numerous, inserted with the petals on the rim of the tube of the calyx.

Tr. V. *POMEÆ.* Fruit a 1—5-celled pome.

15. CRATÆGUS. Calyx-segments 5, acute. Pet. 5. Styles 1—5. Fr. oval or round *concealing the upper end of the* 1—5 *bony* 1—2-seeded *carpels.*

16. COTONEASTER. Calyx-segments 5. Pet. 5. Styles 2—5. Fr. turbinate, *its nuts* adhering to the sides of the calyx but *not cohering at the centre.*—Stam. erect, as long as the teeth of the calyx.

17. MESPILUS. Calyx-segments 5, foliaceous. Pet. 5. Styles 2—5. Fr. turbinate with *the upper end of the bony carpels exposed*; disk dilated, almost as broad as the fruit.

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18. PYRUS. Cal. 5-toothed. Pet. 5. Styles 2—5. *Fr.* fleshy *with 5 cartilaginous distinct* 2-seeded *cells.* Testa cartilaginous.

Tribe I. *Amygdaleæ.*

1. PRUNUS *Linn.*

1. *P. spinosa* (L.); *peduncles* mostly solitary *glabrous, l.* elliptical *glabrous,* branches spinous, fr. globose.—*E. B.* 842. *St.* 3. 2.—L. sometimes slightly downy near the lower part of the midrib beneath, generally appearing after the fl. but sometimes at the same time with them when it is the *β. cœtanea* (Wimm.), P. fruticans *Weihe?* Young branches downy.—Hedges and thickets. Sh. IV. V. *Black Thorn. Sloe.*

2. ? *P. insititia* (L.); *peduncles* usually 2 together *downy, l.* elliptical or ovate-lanceolate *downy beneath,* branches slightly spinous, fr. globose.—*E. B.* 841.—L. usually very downy beneath and slightly so above, particularly when young, usually appearing at the same time with the flowers. Young branches downy.—Hedges and thickets. Sh. IV. V. *Wild Bullace.*

3. ? *P. domestica* (L.); *peduncles* usually 2 together *glabrous, l.* ovate-lanceolate *hairy about the midrib beneath,* branches without spines, "fr. mostly oblong."—*E. B.* 1783.—L. downy when young, afterwards glabrous except the lower half of the midrib which is densely woolly, appearing at the same time with the flowers.—I have endeavoured to characterise these 3 plants, not from a belief that they are true species, but only in deference to the many excellent botanists who consider them as really distinct. It appears to me that they are only varieties of one species and that upon examination nearly every individual will be found to differ from its neighbour.—Woods and thickets. T. IV. V. *Wild Plum.*

4. *P. Padus* (L.); arborescent, l. obovate-lanceolate finely serrate glabrous, *fl. in pendulous racemes,* fr. roundish-oblong.—*E. B.* 1383.—A small tree. L. minutely doubly serrate. Fl. white, numerous, in a lax raceme. Fr. black, harsh and bitter, with a corrugated nut.—Woods and hedges. T. V. *Bird Cherry.*

5. *P. Avium* (L.); arborescent, *l. drooping* oblong-obovate *suddenly cuspidate inciso-serrate downy beneath, calyx-tube contracted* below the entire sepals, "fr. heartshaped."—*E. B.* 706.—Cerasus *Leight.*—A tree of 20—30 feet high. Outer scales of the leaf-buds deflexed. Flower-buds not leafy. Fl. in umbels. Pet. bifid, with a minute claw. "Fr. black, lusciously bittersweet."—Woods. T. V. *Wild Cherry.*

6. *P. Cerasus* (L.); fruticose, *l. not drooping* oblong-obovate or ovate-lanceolate *doubly crenate-serrate glabrous, calyx-tube*

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not contracted, fruit round.—*E. B. S.* 2863. Cerasus austera *Leight.* p. 524.—An erect bushy shrub, 3—8 feet high. Umbels scattered. Outer scales of the leaf-buds erect. Inner scales of the flower-buds leafy. Sep. crenate-serrate. Pet. subemarginate, with a claw. Fr. round, red.—Hedges. Sh. V. E.

Tribe II. *Spirææ.*

2. Spiræa *Linn.*

†1. *S. salicifolia* (L.); *shrubby, stip.* 0, l. elliptic-lanceolate unequally serrate glabrous, racemes terminal compound, stam. longer than the petals.—*E. B.* 1468.—A shrub of 4—5 feet high with smooth round wandlike branches. Fl. flesh-coloured, in dense erect racemes.—Damp woods in the north. Sh. VII. E. S.

2. *S. Ulmaria* (L.); *herbaceous, stip. rounded toothed*, l. interruptedly pinnate, *leaflets* ovate *undivided*: *the terminal one larger palmately* 3—5-*lobed*, fl. in compound proliferous cymes, caps. glabrous contorted.—*E. B.* 960. *St.* 18. 8.—St. about 3 feet high, angular, branched. L. with a few large serrated leaflets and very minute intermediate ones, downy beneath. Peduncles downy. Fl. yellowish, sweetscented. Pet. roundish.—Meadows and banks of ditches and rivers. P. VI.—VIII. *Meadow-sweet.*

3. *S. Filipendula* (L.); herbaceous, stip. of the root leaves linear acute entire, those of the stem rounded and cut, l. interruptedly pinnate, *leaflets all oblong deeply cut and serrate*, fl. in a panicled cyme, caps. "hairy parallelly adpressed."—*E. B.* 284. *St.* 18. 7.—St. 1—1½ foot high, round, simple, panicled at the top. L. mostly radical, spreading; leaflets small, numerous, intermediate ones much smaller. Fl. yellowish white tinged with red. Pet. obovate.—Dry chalky and limestone pastures. P. VI. VII. *Dropwort.* E. S.

Tribe III. *Dryadeæ.*

3. Dryas *Linn.*

1. *D. octopetala* (L.); l. crenate-serrate obtuse, sep. 3 or 4 times as long as broad more or less pointed, base of the cal. hemispherical.—*E. B.* 451. *St.* 20. 3.—Fl. large, white. Pet. 8. L. simple, white with fine dense woolly pubescence beneath. St. prostrate, woody. Seeds obovate-oblong apiculate.—*α.* Sep. acute, covered with red hairs. L. ovate-oblong, deeply cut into large rounded lobes; under side of the petiole and midrib green, bearing minute linear pellucid fringed scales mixed with long hairs, midrib and lateral ribs sparingly hairy and conspicuous. —*β. pilosa* (Bab.). Sep. slightly pointed, covered with nearly black hairs. L. oblong or ovate-oblong, deeply cut into large

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slightly acute lobes; under side of the petioles and midrib dark red, hairy but without scales, midrib and lateral ribs covered with long white hairs and inconspicuous. Awn longer and more feathery.—Alpine situations, particularly on limestone. β. County of Clare, Ireland. P. VI. VII.

2. *D. depressa* (Bab.); l. crenate-serrate obtuse, sep. twice as long as broad blunt and rounded at the end, base of the calyx truncate nearly flat.—*Ann. Nat. Hist.* x. 183. *pl.* 7. *f.* 3. (calyx and leaf).—Fl. large (white or yellowish?). Pet. 8. L. ovate, deeply cut into large rounded lobes, white with fine dense woolly pubescence beneath; under side of the petiole and midrib green, bearing minute pellucid fringed scales mixed with long hairs. Stems prostrate, woody. I have not seen recent petals, but suspect that they are yellowish.—Ben Bulben, Sligo. P. VI. VII. I.

4. GEUM *Linn.*

1. *G. urbanum* (L.); fl. erect, *pet. obovate*, cal. of the fruit reflexed, *carpophore* 0, *lower joint of the awn much longer than the glabrous upper joint*, radical l. interruptedly pinnate and lyrate, stem l. ternate, stip. large rounded lobed and cut.—*E. B.* 1400. *St.* 5. 7.—St. 2 feet high. Fl. small, bright yellow, calyx green. Upper joint of the awn with a few minute hairs at its base.—Hedges and thickets. P. VI.—VIII. *Wood Avens.*

2. *G. intermedium* (Ehrh.); fl. erect or nodding, *pet. roundish with a wedgeshaped claw*, cal. of the fruit patent, *carpophore* 0, *lower joint of the awn longer than the hairy upper joint*, radical l. interruptedly pinnate and lyrate, stem l. 3-lobed, stipules round toothed.—St. 1—2 feet high. Fl. larger than those of *G. urbanum* less than in *G. rivale*, yellow, calyx purplish. Upper joint of the awn covered with long hairs but with a rather long glabrous point. If this plant is not a distinct species I do not know to which of the others it should be referred.—Damp woods. P. VI. VII. E. S.

3. *G. rivale* (L.); fl. nodding, pet. broadly obovate emarginate or obcordate with a long wedgeshaped claw, cal. of the fruit erect, *carpophore elongated, lower joint of the awn equalling the long hairy upper joint*, radical l. interruptedly pinnate and lyrate, stem l. ternate, stip. small ovate toothed.—*E. B.* 106. *St.* 3.—St. about 1 foot high. Fl. large, purplish brown with darker veins, calyx purplish. Head of fruit upon a stalk which is nearly as long as the calyx. Upper joint of the awn with a short glabrous point.—Damp woods. P. VI. VII. *Water Avens.*

5. SANGUISORBA *Linn.*

1. *S. officinalis* (L.); spikes ovate-oblong, stam. about as long as the calyx, leaflets cordate oblong.—*E. B.* 1312.—L. pinnate

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glabrous; leaflets about 13, stalked, opposite, obtuse, coarsely serrate. Minute stipellæ are sometimes found at the base of the leaflets.—*β. media*; spikes elongated cylindrical. *S. media* Linn.?—Damp meadows and pastures on a calcareous soil. P. VI.—VIII. *Great Burnet.*

6. Poterium *Linn.*

1. *P. Sanguisorba* (L.); herbaceous, st. slightly angular, cal. of the fruit hardened quadrangular.—*E. B.* 860.—L. pinnate with numerous small ovate coarsely serrate subsessile leaflets glabrous or slightly hairy beneath. Lower part of the stems and petioles often downy.—On a dry calcareous soil. P. VI.—VIII. *Lesser Burnet.* E. I.

7. Agrimonia *Linn.*

1. *A. Eupatoria* (L.); cal. of the fr. obconic furrowed to the base: exterior spines spreading, l. interruptedly pinnate, the odd leaflet stalked.—*E. B.* 1335. *St.* 59. 4.—St. erect, about 2 feet high. Spikes long with distant flowers. Leaflets deeply serrated.—Fields and road-sides. P. VI. VII.

8. Alchemilla *Linn.*

1. *A. vulgaris* (L.); *l. reniform* plaited 7—9-lobed, lobes rounded serrated throughout green beneath, fl. in terminal corymbs.—*E. B.* 597. *St.* 2. 5.—Slightly hairy. Fl. yellowish green. L. large, on long stalks, those on the stem sessile with a pair of large notched connate stipules.—*β. subsericea* (Koch); st. l. and petioles silky.—Dry hilly pastures. P. VI.—VIII. *Common Lady's Mantle.*

2. *A. alpina* (L.); *radical l. digitate: divisions 5—7 separated* to their base oblong obtuse closely serrated at the end white and silky beneath, fl. in interrupted spikes of small lateral and terminal corymbs, st. slightly branched simple below.—*E. B.* 244. *St.* 51. 2.—St., cal. and under side of the l. beautifully silky. Leaflets rarely slightly combined, *outer ones* of the radical l. very distant or nearly *opposite* to each other. Branches usually undivided, ascending.—Mountains. P. VI. VII. *Alpine Lady's Mantle.*

3. *A. conjuncta* (Bab.); *radical l. peltate-palmate: divisions 5—7 combined through ¼ of their length* oblong obtuse closely serrated at the end white and very silky beneath, fl. in interrupted spikes of small lateral and terminal corymbs, st. with numerous branches.—*Bab. in Ann. Nat. Hist.* x. 25. *A. argentea* (Don MSS.) not *Lam.*—Closely allied to *A. alpina* but usually much larger in all its parts and distinguished by its connected leaflets which are broader, more silky on the underside and so placed in the radical leaves that *the 2 external ones* almost if not quite *touch each other so as to present the appearance of a peltate leaf*; st.

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with long alternate spreading branches, which are often again subdivided; the fl. in small nearly simple distant corymbs, upon longer stalks, and more silky. This plant has now retained its characters for many years in gardens.—Clova Mountains. *Mr. G. Don!* "Gatesgarth Pass, Cumberland." *Mess. Dovaston and Bowman.* P. VI. VII. E. S.

4. *A. arvensis* (L.); *l. palmate 3-fid wedgeshaped below* hairy: lobes with 3—6 teeth at the end, fl. sessile axillary.—*Aphanes* (L.) *E. B.* 1011.—St. prostrate, 4—5 in. long. Fl. very small, greenish, in small hairy inconspicuous tufts.—Dry fields on sand and gravel. A. V.—VIII. *Parsley Piert.*

9. Sibbaldia *Linn.*

1. *S. procumbens* (L.); l. ternate, leaflets wedgeshaped with 3 teeth at the end, fl. corymbose, pet. lanceolate.—*E. B.* 897. *St.* 17. 5.—L. pilose on both sides. St. woody, procumbent. Pet. very small. "Pistils and stam. very variable in number. I am disposed to consider it as a *Potentilla.*" *W. Wilson.*—Dry summits of Scottish mountains. P. VII. S.

10. Potentilla *Linn.*

* *Hairs on the receptacle shorter than the glabrous carpels.*

† Leaves pinnate.

1. *P. rupestris* (L.); *st. erect* dichotomous, leaflets roundish-ovate unequally cut and serrate 5—7 on the lower leaves, on the uppermost 3.—*E. B.* 2058.—*Fl. white,* large. Pet. much longer than the calyx. St. 1—2 feet high.—On Craig Breiddin, Montgomeryshire. P. V. VI. E.

2. *P. anserina* (L.); *st. creeping,* l. interruptedly pinnate, leaflets numerous oblong acutely serrate silky beneath, peduncles solitary.—*E. B.* 861. *St.* 4. 7.—*Fl. yellow,* large. L. green above, white and silky beneath.—*β. sericea* (Koch); white and densely silky on both sides.—Road-sides. *β.* Cambridge. P. VI. VII. *Silver Weed.*

†† Leaves digitate.

3. *P. argentea* (L.); *st. decumbent or ascending, l. quinate,* leaflets obovate-cuneate inciso-serrate downy beneath: margins revolute.—*E. B.* 89. *St.* 17. 7.—Fl. yellow, small, in terminal corymbs.—Dry gravelly places. P. VI. VII.

4. *P. opaca* (L.); st. ascending, *l. of* 7 hairy *linear*-cuneate leaflets deeply serrated throughout green above and below, stem l. ternate, teeth 5 or more on each side of a leaflet.—*E. B.* 2449. —Fl. on long simple solitary axillary or panicled stalks, yellow. Serratures large distant, extending almost to the base of the leaflet. I have not seen specimens.—Clova and Balquidder, Scotland. P. VI. S.

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5. *P. verna* (L.); *st. prostrate*, lower l. of 5—7 *obovate leaflets* serrated towards the end bristly on the margin and ribs beneath: teeth 2—4 on each side, *lowest stipules narrowly linear.*—*E. B.* 37. *St.* 17. 8.—St. woody, about 5 in. long. Fl. yellow, solitary or 2 or 3 together. The terminal tooth of the l. usually smallest and shortest.—Dry pastures. P. IV. V. E. S.

6. *P. alpestris* (Hall.); *st. ascending*, lower l. quinate, leaflets obovate-cuneate somewhat hairy deeply cut in the upper half: teeth about 4 on each side, *stip. all ovate.*—*E. B.* 561. *P. salisburgensis* (Haenke) *St.* 17. 10., *Koch.*—Larger than the preceding. —Mountains. P. VI. VII. E. S.

7. *P. reptans* (L.); *st. filiform* procumbent *creeping, l.* quinate *stalked*, leaflets obovate serrated, peduncles solitary, *carpels granulate-scabrous.*—*E. B.* 862.—L. on long stalks, often with a bunch of small l. in their axils, sometimes solitary, usually in pairs. Leaflets blunt, rough or hairy on their ribs and margins. Fl. on long stalks yellow.—*β. sericea*; l. and cal. covered with long silky hairs on both sides.—*γ. acutifolia*; leaflets lanceolate acute deeply toothed covered with silky hairs on both sides, calyx-segments elongated acute silky.—Road-sides and banks. *β.* Usan, Forfarshire. *Mr. Lindsay Carnegie.* *γ.* Milton, Northamptonshire. *Rev. M. J. Berkeley.* P. VI.—IX.

8. *P. Tormentilla* (Nesl.); st. procumbent or ascending, l. ternate sessile or shortly stalked, lower l. quinate on long stalks, leaflets lanceolate inciso-serrate, *carpels longitudinally wrinkled.* —*Tormentilla officinalis* (L.) *E. B.* 863. *St.* 34. 12.—Leaflets acute, somewhat hairy. L. all nearly sessile except the lowest which often have long stalks. Stip. deeply cut. Fl. small, yellow, usually with 8 sep. and 4 pet. but varying greatly in that respect. (See *Mag. Nat. Hist.* vi. 248.)—*β. nemoralis* (Ser.); leaflets obovate-cuneate deeply cut, l. all shortly stalked, stip. entire or trifid. Fl. twice as large. *T. reptans* (L.) *E. B.* 864. —In dry places. *β.* Woods and hedge-banks. P. VI.—VIII.

** *Hairs on the receptacle elongated, carpels hairy at the scar or all over.*

9. *P. fruticosa* (L.); *shrubby, l. pinnate*, leaflets mostly 5 oblong acute entire hairy with revolute margins.—*E. B.* 88.—St. 3—4 feet high. Fl. large, yellow, terminal, somewhat aggregated. —Teesdale. Galway. Clare. Sh. VI. VII. E. I.

[10. *P. alba* (L.); *st. weak ascending, l. quinate*, leaflets elliptic-oblong narrowed below silky beneath tipped with converging serratures, filaments and carpels glabrous except at the scar of the latter.—*E. B.* 1384. *St.* 4. 2.—Fl. white. Stem l. ternate.—Said to have been found in Wales. *Huds.* P. VI.] E. ?

11. *P. tridentata* (Sol.); st. woody creeping at the base,

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l. ternate, leaflets oblong-cuneate *with* 3 *teeth at the end* glabrous above hairy beneath, filaments glabrous, carpels downy.—*E. B.* 2389.—Fl. white.—Werron Hill, Clova. *Mr. G. Don.* P. VI.—S.

12. *P. Fragariastrum* (Ehrh.); st. procumbent, l. ternate, *leaflets roundish obovate serrate* silky on both sides, carp. glabrous except at the scar smooth or wrinkled transversely.—*E. B.* 1785. —Fl. small, white.—Woods and hedge-banks. P. IV. V. *Barren Strawberry.*

11. COMARUM *Linn.*

1. *C. palustre* (L.). The only species, differing from Potentilla, to which it perhaps ought to be joined, by its enlarged spongy receptacle.—*E. B.* 172.—St. ascending, 1 foot high, reddish. L. pinnate. Leaflets 5—7, elliptic-oblong, acute, sharply serrate. Fl. several, dark purple; cal. purple within; pet. small. —Marshes and peaty bogs. P. VII.

12. FRAGARIA *Linn.*

1. *F. vesca* (L.); cal. of the fruit spreading or reflexed, *hairs on* the peduncles spreading those of the *pedicels adpressed upwards* silky.—*E. B.* 1524. *E. B. S.* 2742.—Hairs on the pedicel of the first fl. spreading, those on the under side of the l. adpressed.—Woods and thickets. P. V. VI. *Wood Strawberry.*

†2. *F. elatior* (Ehrh.); cal. of the fruit spreading or reflexed, *hairs on* the peduncles and *pedicels spreading and somewhat deflexed.*—*E. B.* 2197. *F. moschata* Lindl.—Fl. imperfectly diœcious. A larger and more hairy plant than the last.—Woods in the south, rare. P. VI.—IX. *Hautboy Strawberry.*

13. RUBUS *Linn.*[1]

* *Shrubby, erect; leaves pinnate.*

1. *R. Idæus* (L.); st. nearly erect round prickly, l. pinnate with 5 or 3 leaflets, fl. in pendulous clusters.—*E. B.* 2442. *W. and N.* 47.—Prickles very numerous, small, straight, deflexed, purple. Leaflets white beneath. Fr. scarlet, or amber-coloured and then the prickles are pale.—Woods in hilly places in the north. Sh. V. VI. *Raspberry.*

** *Stems nearly erect, shrubby; l. digitate or subpinnate.*

2. *R. suberectus* (Anders.); st. nearly erect not rooting angular, prickles uniform few small straight, l. digitate-quinate or

[1] Before commencing this most difficult genus I beg to acknowledge my great obligations to the account of it by Mr. Borrer in *Hook. Br. Fl. ed.* 2 and *ed.* 3, to Leighton's *Flora of Shropshire* and to the invaluable plates in Weihe and Nees's *Rubi Germanici.* In the descriptions by *stem* is meant the *barren stem*, and the *shape of the leaves* is always taken from a *terminal full-grown leaflet from that stem.*

1841

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pinnate, leaflets flexible cordate-ovate pointed lowermost pair usually sessile, panicle nearly simple, *calyx of fruit reflexed.*—*E. B.* 2572.—St. 3—4 feet high. L. digitate and pinnate on the same stem. Prickles confined to the angles of the stem. *Ripe fruit deep red.*—Boggy woods and heaths in the north. Sh. VI.—VIII. 1794

3. *R. fissus* (Lindl.); st. arched not (?) rooting angular, prickles scattered uniform numerous slender straight, l. digitate or pinnate, *leaflets* cordate-ovate cuspidate plicate, *lowermost pair sessile*, panicle nearly simple corymbose, *cal. of fruit erect.*—*Lindl. Syn. ed. 2. p. 92. Leight. Shrop. p.* 225.—"St. reclining," about 2 feet long, hairy. L. digitate and pinnate on the same stem. Prickles not confined to the angles.—Ayrshire and Salop. Sh. VII.—IX. E. S. 1835

4. *R. plicatus* (W. and N.); st. nearly erect not rooting angular, *prickles confined to the angles* uniform slightly *curved*, l. digitate, leaflets cordate-ovate cuspidate plicate, *lowermost pair* slightly *stalked*, panicle nearly simple corymbose, *cal. of fruit reflexed.*—*E. B. S.* 2714. *W. and N.* 1. R. fruticosus *Arrhen. Rubi Suec.*—St. 3—4 feet long, glabrous.—L. very rarely pinnate. Leaflets downy and paler beneath. Panicle rather prickly. *Fr.* finally *quite black.*—Boggy woods. Sh. VII. VIII. Rubi Germ. 1822.

*** *Stems arched or prostrate, rooting, angular, without setæ.*

† Prickles chiefly confined to the angles of the stem, nearly uniform.

5. *R. affinis* (W. and N.); st. arched angular smooth, prickles weak, l. quinate, *leaflets* cordate-ovate cuspidate *thin* flexible flat downy beneath, *lowermost overlapping* the intermediate pair and *nearly sessile, panicle diffuse.*—*W. and N.* 3. *Leight. p.* 226.—St. many feet long. Prickles often few in number. Leaflets large, generally thin, paler beneath and downy; but in a form approaching *R. rhamnifolius* thicker somewhat coriaceous and whitish and cottony beneath. Panicle straggling, loose.—Hedges and thickets. Sh. VII. VIII.

6. *R. rhamnifolius* (W. and N.); st. arched angular nearly naked, prickles strong nearly straight horizontal or deflexed, l. quinate, *leaflets* ovate or nearly round or cordate cuspidate downy beneath *thick and coriaceous, lowermost pair stalked distinct, panicle compound diffuse.*—*E. B. S.* 2604. *W. and N.* 6. and (*R. cordifolius*) 5.—St. many feet long, naked or slightly hairy. Leaflets variable in shape, soft and whitish beneath; but in a form approaching to *R. affinis* thinner hairy beneath but neither soft nor white. Panicle spreading rather elongated.—Leighton's second form which has the lowest pair of leaflets overlapping and sessile is perhaps distinct. It approaches *R. co-*

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rylifolius but wants setæ on the barren stems and has uniform prickles.—Common. Sh. VII. VIII.

7. *R. leucostachys* (Sm.); st. arched slightly angular hairy, *prickles* uniform *straightish* or horizontal, l. quinate, *leaflets* ovate or roundish abruptly pointed coriaceous flat *soft and tawny or white with shining hairs beneath, panicle long* narrow *leafy* shaggy or *downy*.—*E. B. S.* 2631.—St. long, furrowed or nearly round. Prickles moderate, numerous. Leaflets, particularly those of the flowering shoot, usually wavy at the margins and jagged but not decurved.—Hedges and thickets. Sh. VII. VIII. E.

8. *R. fruticosus* (L.); *st.* arched *angular furrowed* silky, prickles uniform straightish decurved or horizontal, l. quinate, *leaflets* obovate or oblong pointed coriaceous *with decurved margins hard and white beneath, panicle long* narrow *leafless* hairy.—*E. B.* 715. R. discolor *W. and N.* 20.—St. long, usually deeply furrowed, silky or nearly glabrous. Prickles large, strong, numerous. Leaflets varying in shape, obovate and acute, or cuneate-oblong abrupt and cuspidate, not jagged at the margin.—*R. fruticosus* W. and N. 7. looks rather different and is referred to *R. thyrsoideus* (Wimm.) by Arrhenius.—Hedges, less common in the north. Sh. VII. VIII.

9. *R. carpinifolius* (W. and N.); st. arched angular hairy, *prickles* strong *curved* deflexed, l. quinate, leaflets ovate acuminate rather coriaceous but flexible green beneath, lowermost pair stalked distinct, *panicle compact* with ascending branches.—*E. B. S.* 2664. *W. and N.* 13.—St. long clothed with fascicles of hairs. Prickles numerous, of moderate size, uniform, curved, tipped with yellow. Leaflets slightly hairy above, more so and paler but still green beneath. Panicle prickly and compact.—Hedges, rare. Sh. VII. VIII. E. I.

10. *R. vulgaris* (W. and N.); st. arched angular hairy, *prickles* moderate *straight* decurved, l. quinate, *leaflets roundish* or elliptical *cuspidate* narrowed below pale green and pubescent beneath, lowermost pair stalked distinct, *panicle long narrow* rather leafy below.—*W. and N.* 14. *β. Leight. p.* 230.—St. long, reddish. Prickles uniform, purplish with the point yellow. Panicle with short few-flowered branches, prickles numerous straight long. The want of setæ and the stalked lowermost leaflets separate this from *R. corylifolius*.—Hedges and thickets. Sh. VII. VIII. E. S.

11. *R. macrophyllus* (W. and N.); st. arched angular hairy, *prickles* few *small* uniform *straight*, l. quinate or ternate, leaflets elliptic-ovate thin pale green and pubescent beneath, lowermost pair stalked, *panicle compound* somewhat *corymbose*.—*E. B. S.* 2625. *W. and N.* 12.—St. long, purplish. Prickles short, thick at the base, distant. Leaflets irregularly but scarcely doubly

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serrated, acute or with a long point. Prickles on the panicle small.—β. *Schlechtendalii*; l. obovate-cuneate cuspidate irregularly doubly serrate. *R. Schlechtendalii* W. and N. 11.—Hedges and thickets, rare. Sh. VII. VIII. E.

†† Prickles not confined to the angles and unequal.

12. *R. villicaulis* (Koehl.); st. arched or prostrate hairy, prickles unequal slender straight numerous, l. quinate, leaflets oval or roundish cuspidate soft shining hoary and whitish beneath, *lowermost pair stalked, panicle leafy* compound *with diverieating branches*.—St. nearly prostrate, shaggy. Prickles very unequal.—I include under this name the following plants which are considered as species in the *Rubi Germanici*.—α. *villicaulis*; leaflets roundish slightly narrowed below white beneath, panicle with numerous long slender straight prickles its branches few-flowered. *t.* 17.—β. *argenteus*; leaflets roundish-obovate white beneath, panicles with numerous long thicker straight prickles branches few-flowered. *t.* 19.—γ. *sylvaticus*; leaflets cordate-ovate pale green beneath, panicles with small slender prickles branches short patent few-flowered. *t.* 15.—δ. *tenuis*; leaflets roundish acute scarcely cuspidate thin pilose above pale green and hairy beneath, prickles not very unequal slightly deflexed, panicles with few slender prickles and short few-flowered rather distant branches. This does not appear to be figured in the *Rubi Germ.* The lower leaflets are frequently combined with the intermediate pair but when separate they have short stalks.—ε. *pubescens*; leaflets ovate with a long point thin pale green and hairy beneath, prickles very unequal deflexed, panicles with few slender prickles and short few-flowered branches. *t.* 16.—Woods and hedges. α. and β. Channel Islands. γ. near Bath. δ. and ε. Shropshire. Sh. VII. VIII. E.

13. *R. corylifolius* (Sm.); st. decurved roundish slightly hairy with *very few setæ*, prickles unequal nearly straight deflexed, l. quinate, leaflets roundish-ovate cuspidate paler soft and hoary beneath, *lowermost pair sessile* and overlapping the others, *panicle narrow* contracted *naked*.—*E. B.* 827.—St. slightly angular, setæ few or none. Prickles often slightly curved downwards. Calyx of the fruit reflexed.—Hedges and thickets. Sh. VII. VIII.

**** *Stem arched or prostrate, rooting, angular, hairy, glandular, setose.*

† Prickles unequal, chiefly confined to the angles.

14. *R. Radula* (W. and N.); st. arched very hairy and setose, prickles unequal stout deflexed, l. quinate, *leaflets ovate* acuminate *jagged* and serrated smooth and opaque above soft and white beneath, lowermost pair stalked, panicle long leafy naked at the end with ascending branches.—*W. and N.* 39.—

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St. moderately long, dark purple, with numerous short nearly equal setæ, prickles not very unequal purple with a yellow tip. Leaflets jagged or coarsely doubly serrated.—*β. rudis*; st. furrowed nearly without hairs, prickles slender straightish, setæ numerous, leaflets narrower at the base less coarsely serrate. *R. rudis* W. and N. 40.—*γ. Hystrix*; st. slightly angular hairy setose, prickles moderate slightly curved deflexed, leaflets oblong-ovate attenuated into a long point coarsely serrate whitish green beneath. *R. Hystrix* W. and N. 41.—Hedges and thickets, Shropshire. *β.* Channel Islands. *γ.* Between Pansanger and Bramfield, Herts. *Rev. W. H. Coleman.* Sh. VII. VIII. E. I.

15. *R. Leightoni* (Lees); st. arched hairy copiously glandular and setose, *prickles nearly uniform* straight horizontal, l. quinate, *leaflets* roundish-*obovate abruptly cuspidate finely serrate* smooth and opaque above white with soft close pubescence beneath, lowermost pair stalked, panicle long straggling naked above with divaricate branches.—*Leight. p.* 233.—St. long, green, slightly hairy, with numerous short setæ, prickles yellow. Leaflets remarkably abrupt.—Hedges in Shropshire. Sh. VII. E.

= rudis Weihe 1829.

16. *R. echinatus* (Lindl.); st. arched angular hairy setose, *prickles numerous and rather unequal decurved*, l. quinate, *leaflets ovate with a long tapering point coarsely and unequally serrate* opaque above green and velvety beneath, panicle spreading leafy at the base with corymbose branches.—*Lindl. Syn. ed.* 1. *p.* 94.—Setæ numerous and nearly equal in length. L. tapering in a remarkable manner, jagged.—Shropshire and near Bath. Sh. VII. VIII. E.

†† Prickles not confined to the angles and passing insensibly into setæ.

17. *R. Lingua* (Weihe); st. procumbent or arched slightly hairy and setose, prickles unequal slightly curved and deflexed, l. quinate or ternate, *leaflets obovate-cuneate abruptly cuspidate* nearly glabrous above pale green and hairy beneath, lowermost pair stalked, *panicle lax* with corymbose *few-flowered* branches and *long pedicels*, calyx of the fruit reflexed.—*W. and N.* 38.—St. long, slightly arched or procumbent, obsoletely angular, green, at length purple. Prickles not very numerous, purplish-yellow. *Leaflets remarkably abrupt.* Panicle remarkable for its very long single-flowered pedicels.—Devon and Channel Islands. Sh. VII. VIII. E.

18. *R. Koehleri* (W. and N.); st. decurved or procumbent slightly hairy setose, *prickles very numerous and unequal* straight horizontal, l. quinate, *leaflets obovate* with a long acuminate point opaque above hairy soft and shining beneath, lowermost pair stalked, *panicle decompound* naked at the summit with spreading corymbose branches, calyx of the fruit spreading.—*W. and N.*

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25.—Known by its extremely numerous and very unequal prickles. —*β. fusco-ater*; prickles fewer and smaller deflexed, hairs and setæ more numerous, *leaflets elliptical* subcordate acuminate, *panicle narrow* short leafy below. *R. fusco-ater* W. and N. 26. —*γ. pallidus*; clothing of the st. as in *β*, *leaflets obovate*-elliptical acuminate, panicle narrow short leafy below. *R. pallidus* W. and N. 29.—Hedges and thickets. Sh. VII. VIII. E. I.

19. *R. Lejeunii* (W. and N. ?); st. arched (?) slightly angular hairy sparingly setose, prickles numerous unequal straight deflexed, l. ternate or quinate, *leaflets ovate* acuminate hairy above rather downy beneath *coarsely and unequally serrate*, lowermost pair stalked, *panicle decompound* naked above with spreading corymbose branches, calyx of the fruit reflexed.—*W. and N.* 31. ?—Differs from the last by its jagged leaves and much less numerous and smaller prickles.—Channel Islands. Sh. VII. VIII. O.

20. *R. dumetorum* (W. and N.); *st.* arched *angular* hairy and sparingly setose, *prickles very numerous* unequal straight deflexed, l. quinate, leaflets orbicular narrower and cordate at the base acuminate hairy and rugose above paler and velvety beneath, lowermost pair sessile, panicle long and straggling with short corymbose branches, calyx embracing the (*black*) fruit.—*W. and N.* 45. *R. diversifolius* Lindl. !—St. strong, thickly covered with very unequal prickles dilated at the base. Leaflets large.—I am not acquainted with *R. Schleicheri* of Leight. Fl. of Shrop. which is probably a variety of the present species.—Rare. Shropshire. Sh. VI.—VIII. E. I.

21. *R. cæsius* (L.); *st.* prostrate *round* or nearly so *glaucous* setose, *prickles small* unequal *slender* straight deflexed, l. ternate or rarely quinate, leaflets broadly ovate cuspidate slightly hairy above paler and downy beneath, lowermost pair sessile, panicle corymbose, calyx embracing the (*glaucous*) fruit.—*E. B.* 826. *W. and N.* 46.—St. slender, weak; prickles varying greatly in number, always small and slender. L. usually ternate; terminal leaflet ovate narrowing gradually into a long point and coarsely doubly serrate, or roundish cordate-ovate cuspidate and nearly simply serrate.—Dr. Lindley gives *R. hirtus* (W. and N.) as a native of England, and says of it (ed. 2.) "a strong glandular state of *cæsius* approaching *R. Koehleri.*" I have seen no specimens.—Hedges and thickets, common. Sh. VI.—VIII. *Dewberry.* E. I.

***** *Stem herbaceous or nearly so.*

22. *R. saxatilis* (L.); st. slender nearly herbaceous prostrate hairy unarmed or with few very distant minute prickles, flowering stem erect simple with few straight weak prickles, panicle terminal corymbose of few flowers, l. ternate, leaflets ovate-acu-

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minate inciso-serrate slightly hairy.—*E. B.* 2233. *W. and N.* 9. —St. very slender and long, rooting. L. small. Flowering stem 6—8 in. high. Fl. few, small, greenish. Fr. of very few large red drupes.—Stony mountains, rare. P. VII. VIII.

23. *R. Chamæmorus* (L.); *l. simple* lobed and plaited, st. without prickles erect 1-flowered herbaceous—*E. B.* 716. *W. and N.* 49.—Root creeping. St. 6—10 in. high. Fl. large, white, dioecious. Fr. large, red, at length orange-yellow.—Alpine turfy bogs. P. VI. *Cloudberry.*

24. *R. arcticus* (L.); leaflets 3 ovate oblong bluntly serrate, st. erect simple unarmed 1-flowered herbaceous.—*E. B.* 1585. —St. 4—6 in. high. Fl. rose-coloured, large, terminal. Fr. purplish-red.—Mountainous parts of the Isle of Mull and on Ben y Glo. Not found for many years. P. V. S.?

Tribe IV. *Rosææ.*

14. Rosa *Linn.* (1) Rose.

* *Shoots setigerous, prickles scarcely curved.*

† Bracts large.

[1. *R. Dicksoni* (Lindl.); "shoots setigerous," prickles scattered slender subulate, *leaflets oval with coarse double serratures* hoary, sep. long simple equal, *fruit ovate*-urceolate.—*E. B. S.* 2707.—Smaller serratures of the l. irregular or wanting. Peduncles thickened upwards, setose.—Probably not a native. See *Mack. Fl. Hibern.* Sh. VI.] I.?

[2. *R. cinnamomea* (L.); shoots setigerous, prickles scattered slender subulate, *leaflets lanceolate-oblong simply serrate downy and glandulose beneath,* sep. long simple, *fr. ovate* small. *Borr.*—*E. B.* 2388.—Serratures of the leaves sometimes with an intermediate tooth. Peduncles not thickened upwards, without setæ. Sep. longer than the corolla, mostly simple, linear-lanceolate, connivent on the fruit.—Probably not a native. Sh. V.]—E.? S.?

†† Bracts small or wanting.

3. *R. rubella* (Sm.); st. and branches densely setigerous throughout, prickles nearly equal few slender, *leaflets* simply serrated *naked their disk eglandulose,* fr. oblong or urceolate pendulous.—*E. B.* 2521 and (fruit) 2601.—Persistent sepals mostly spreading. Fr. bright red.—Said to have been found at South Shields and Abergeldy, but a doubtful native. Sh. V.—E.? S.?

[1] In this very difficult genus I have availed myself of the characters and observations given by my valued friend Mr. Borrer in *Hook. Br. Fl. ed.* 3.

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4. *R. spinosissima* (L.); *prickles* numerous *crowded very unequal* mostly straight subulate or setaceous intermixed with setæ, leaflets simply serrated their disk without glands, *sep.* half as long as the cor. acuminate *entire, fr. nearly globular erect.*—*E. B.* 187.—Fr. dark purple or black.—*β. pilosa* (Lindl.); "l. acute hairy on the under side."—Sandy and chalky heaths. *β.* Ireland. Sh. V.

5. *R. hibernica* (Sm.); *prickles scattered* unequal the larger ones slightly falcate, *setæ few, leaflets* simply serrate *hairy beneath* their disk without glands, *sep.* shorter than the cor. *pinnate* slightly leafy, fr. nearly globular.—*E. B.* 2196.—Fr. somewhat urceolate, blood-red. Fl. mostly solitary or 2 or 3 together. Leaflets sometimes smooth when growing in exposed places near the sea.—Counties of Derry and Down, Ireland. Sh. V.—X. I.

6. *R. Wilsoni* (Borr.); *prickles* numerous *crowded very unequal* straight, setæ few, *leaflets* simply serrate *hairy on both sides* their disk without glands, *sep.* shorter than the pet. slightly leafy *mostly simple, fr. ovate-urceolate.*—*E. B. S.* 2723.—Fr. scarlet. —Banks of the Menai near Bangor. Sh. VI. E.

7. *R. involuta* (Sm.); prickles crowded very unequal straight, setæ few, *leaflets doubly serrate hairy and glandular beneath, sep. nearly as long as the cor.* slightly leafy mostly simple, fr. globose-urceolate setose.—*E. B.* 2068 and (fruit) 2601.—Fr. dark red. Dwarf.—Hebrides and western highlands of Scotland. Sh. VI. S.

8. *R. Sabini* (Woods); *prickles scattered* unequal straight or nearly so, setæ few, leaflets doubly serrate hairy glandular beneath, *sep.* nearly as long as the cor. *somewhat pinnate* slightly leafy, fr. globose or slightly urceolate setose.—*E. B. S.* 2594. —Fr. dark red.—*β. doniana* (Lindl.); prickles more numerous, l. very hairy, cal. almost simple. *E. B. S.* 2601.—*γ. gracilis* (Borr.); larger prickles falcate, cal. almost simple. *E. B.* 583 (fig. only).—Mostly in the north. Sh. VI.

** *Shoots mostly without setæ, leaves glandulose.*

† Prickles nearly uniform, setæ few or none.

9. *R. villosa* (L.); prickles uniform nearly straight, leaflets doubly serrated downy glandular, *sep. slightly pinnate,* root-shoots straight.—*E. B.* 2459.—*Sep. persistent usually connivent on the* elliptical or nearly globose *fruit.*—Northern counties. Sh. VI. VII.

10 *R. tomentosa* (Sm.); prickles mostly uniform straight or curved, leaflets doubly serrated downy glandular, *sep. copiously pinnate.*—*E. B.* 990 and 1896.—Root-shoots straight or arched.

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Sep. persistent usually spreading on the oblong or urceolate *fruit.* A very variable plant.—Hedges and thickets. Sh. VI. VII.

11. *R. inodora* (Fries); *prickles* uniform *uncinate,* leaflets doubly serrated hairy glandular beneath, *sep. closely pinnate mostly deciduous,* ramuli without setæ, fr. elliptical or nearly globular.—*E. B.* 2579.—L. sparingly glandular, sometimes with more numerous glands, and then the sep. are elongated and persistent. Sep. short with a short leafy point and closely-set shortly-lanceolate often compound pinnæ.—Hedges and thickets. Sh. VI. VII. E. I.

12. *R. micrantha* (Sm.); prickles uniform uncinate, leaflets doubly serrated hairy glandular beneath, *sep. and pinnæ elongated deciduous, ramuli sparingly setigerous,* fr. small elliptical and ovate.—*E. B.* 2490.—Distinguished by its sepals with a long leafy point and narrow lanceolate simple pinnæ from the last, and by its uniform prickles, its small fruit (primordial) rounded at the base and deciduous sepals from the following. Glands on the under side of the leaves numerous.—Hedges and thickets in the south. Sh. VII. VIII. E. I.

†† Prickles various, intermixed with setæ.

13. *R. rubiginosa* (L.); prickles numerous the larger uncinate the smaller subulate, leaflets doubly serrate hairy glandulose beneath rounded at the base, *sep. and pinnæ elongated persistent,* primordial fruit pearshaped.—*E. B.* 991.—The various prickles, persistent calyx and pearshaped (primordial) fruit distinguish this from the 2 last with which it is very closely allied and has been combined by Lindley and Fries.—Bushy places. Sh. VI. VII. *Sweet-Briar.*

14. *R. sepium* (Thuil.); prickles numerous the larger curved the smaller subulate, *leaflets* doubly serrated hairy glandular beneath *acute at the base,* sep. and pinnæ elongated narrow, fruit (primordial) ovate rounded at the base.—*E. B. S.* 2653.—Pinnæ of the calyx small, narrowly lanceolate, springing nearly at right-angles from the sepals which have a linear-lanceolate limb.—Bridport, Warwickshire. Heyford, Oxfordshire. Sh. VI. E.

*** *Shoots mostly without setæ, leaves without glands.*

† Styles distinct, included, or nearly so.

15. *R. canina* (L.); prickles uniform hooked, l. naked or slightly hairy without glands the serratures simple or compound, sep. pinnate deciduous, styles distinct.—*α. canina*; leaflets naked keeled serratures simple. Leaflets narrowly elliptical, not rounded below, often with a twisted point, green or grey. *R. canina* Woods. *E. B.* 992.—*β. sarmentacea* (Borr.); leaflets naked keeled serratures compound. *R. sarmentacea* Woods. *E. B. S.* 2595.—*γ. surculosa* (Borr.); leaflets naked flat serra-

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tures simple. Leaflets roundish or elliptical with irregular serratures. *R. surculosa* Woods.—δ. *dumetorum* (Borr.); leaflets hairy on both sides flat. Terminal leaflets often nearly cordate. *R. dumetorum* Woods. *E. B. S.* 2610.—ε. *Forsteri* (Borr.); leaflets more or less hairy not flat. Leaflets concave or keeled, hairy on both sides or only beneath. *R. Forsteri* Sm. *E. B. S.* 2611.—See Borrer's detailed account of this very variable species in *Hook. Br. Fl. ed.* 3.—Hedges and thickets. Sh. VI. VII. *Dog Rose.*

16. *R. bractescens* (Woods); "calyx-tube globose, prickles hooked, leaflets simply serrated downy beneath, bracteas overtopping the fruit." *Woods.*—Styles woolly. Fr. globose.—Ulverston, Lancash.; Ambleside, Westm. *Mr. Woods.* Sh. E.

17. *R. cæsia* (Sm.); prickles uniform uncinate, leaflets doubly serrate downy without glands, *sep. distantly and sparingly pinnate,* fr. elliptical smooth.—*E. B.* 2367.—Difficult to distinguish on paper from *R. canina* but more resembling *R. tomentosa* in appearance.—In the north. Sh. VI.

†† Styles united in a column, mostly exserted.

18. *R. systyla* (Bast.?); prickles uniform uncinate, leaflets simply serrate without glands, sep. sparingly pinnate deciduous, *central germens stalked,* styles hairless, *stigmas forming a conical head, shoots nearly erect.*—*E. B.* 1895.—Serratures towards the upper end of the leaflets usually converging. Germens in the centre of the calyx on stalks as long as themselves. Column of styles variable in length. L. nearly glabrous or hairy on both sides. The strongly arched shoots often rise to the height of 10—12 feet.—Hedges and thickets. Sh. VI. VII. E. I.

19. *R. arvensis* (Huds.); prickles uncinate those on the ramuli feeble, leaflets simply serrate deciduous without glands, sep. sparingly pinnate deciduous *all the germens sessile,* styles hairless, *stigmas forming a round head, shoots trailing.*—*E. B.* 188.—Hedges and thickets. Sh. VI. VII.

Tribe V. *Pomeæ.*

15. Cratægus *Linn.*

1. *C. Oxyacantha* (L.); spinose, l. obovate 3—4-lobed cut and serrate cuneate at the base, fl. corymbose, cal. not glandular, styles 1—3.—*E. B.* (var. β.?) 2504.—It is not improbable that the 2 following varieties are distinct species.—α. l. lobed bluntish, peduncles and calyces glabrous, styles 1—3, fruit oval. *C. Oxyacantha* L., Jacq.—β. *monogyna*; l. deeply lobed usually acute, peduncles and calyces villose, style 1 bent, fruit subglobose. *C. monogyna* Jacq., Koch.—Hedges and thickets, β, the more common form. T. V. VI. *Hawthorn. Whitethorn.*

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16. COTONEASTER *Lindl.*

1. *C. vulgaris* (Lindl.); l. roundish-ovate rounded at the base, flowerstalks and margins of the calyx downy.—*E. B. S.* 2713.—Pet. rose-coloured. Fr. small, pendulous.—Cliffs at the Great Ormes Head, Caernarvonshire. Sh. V. E.

17. MESPILUS *Linn.*

1. *M. germanica* (L.); l. lanceolate undivided downy beneath, fl. solitary.—*E. B.* 1523.—L. entire simply or doubly serrate. In a wild state spinous.—Hedges and thickets in Surrey, Sussex and Cheshire. T. V. VI. *Medlar.* E.

18. PYRUS *Linn.*

1. *P. communis* (L.); "l. simple ovate serrated, flowerstalks corymbose, *fruit turbinate*," "*styles free.*"—*E. B.* 1784.—Germen woolly. Leaves, on my specimens, obovate suddenly contracted into a long very acute point, 3 times as long as their stalks.—Hedges and woods. T. IV. V. *Wild Pear tree.*

2. *P. Malus* (L.); l. ovate acute serrate, fl. in a sessile umbel, *fr. globose, styles combined below.*—*E. B.* 179.—*α. glabra* (Koch); young branches peduncles calyx-tube and under side of the l. glabrous.—*β. tomentosa* (Koch); the same parts pubescent or woolly. See *Leight. Fl. Shrop. p.* 527.—Woods and hedges. T. V. *Crab tree.*

*3. *P. domestica* (Sm.); l. pinnate downy beneath serrated, *fl. panicled*, "*fr. obovate.*"—*E. B.* 350.—Fr. resembling a small pear.—One tree in Wyre Forest. T. V. *Service tree.* E. S.

4. *P. aucuparia* (Gaert.); l. pinnate downy beneath serrated, *fl. corymbose, fr. globose.*—*E. B.* 337.—Hilly woods and on mountains. T. V. VI. *Rowan tree. Mountain Ash.*

5. *P. pinnatifida* (Ehrh.); *l. oblong doubly serrate near the apex pinnatifid below: pinnæ lanceolate* oblong serrated the 2 *lowermost distinct*, underside white and downy, fl. corymbose.—*E. B.* 2331. *Sorbus hybrida* L.—Fr. scarlet. Lower part of the l. usually truly pinnate, the lobes becoming more and more combined as they approach the extremity of the leaf which is only deeply and doubly serrate.—Mountains in the northern part of the Isle of Arran. T. V. S.

6. *P. Aria* (Sm.); *l. oval or oblong* unequally and doubly *serrate or slightly lobed towards the apex nearly entire below* underside white and downy, fl. corymbose. *E. B.* 1858.—Fr. scarlet. Veins of the l. numerous.—*β. intermedia* (Sm.); l. oblong doubly serrate and lobed: *lobes deepest towards the middle of each side of the leaf*, lateral nerves much fewer.—Hilly and mountain woods. *β.* Castle Dinas Bran. T. V. *White Beam tree.*

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7. *P. terminalis* (Sm.); *l.* ovate or cordate *lobed* glabrous: *lobes triangular acute* serrated the lower ones larger and spreading, fl. corymbose.—*E. B.* 298.—Fr. oval, brown.—Woods and hedges chiefly in the south. T. IV. V. *Wild Service tree.* E.

Order XXVIII. LYTHRARIEÆ.

Cal. tubular, lobed: lobes valvate or distant in æstivation, sometimes with intermediate teeth. Pet. between the lobes of the calyx, very deciduous. Stam. inserted in the tube of the cal. below the pet. and equalling them or 2, 3 or 4 times as many. *Ovary free*, 2—4-celled, with numerous seeds and a central placenta surrounded by the calyx. Caps. membranaceous, usually (by abortion) 1-celled. Embryo straight.

1. LYTHRUM. *Cal. tubular, cylindrical*, with 8—12 teeth; 4—6 broader, erect; alternate teeth subulate, opposite to the petals. Pet. 4—6. Stam. inserted at the middle or base of the calyx, as many as, or twice the number of the petals. *Style filiform.* Caps. 2-celled, many-seeded.

2. PEPLIS. *Cal. campanulate* with 12 teeth of which 6 are broader and erect, the others subulate. Pet. 6, minute, fugaceous. Stam. 6, opposite to the broader teeth of the calyx. *Style very short.* Caps. 2-celled, many-seeded.

1. LYTHRUM *Linn.*

1. *L. Salicaria* (L.); *l. lanceolate from a cordate base opposite* or whorled, fl. in whorled leafy spikes, bracts 0, subulate calyx-teeth twice as long as the others, stam. 12.—*E. B.* 1061.—Whorls of fl. in a more or less leafy spike, upper l. usually very small, shorter than the flowers; but sometimes (*β. verticillatum*) so large as totally to destroy the spiked appearance and give quite a different aspect to the plant. St. 2—4 feet high and l. nearly glabrous, or (*γ. canescens*) downy with crisped hairs. Fl. large, purple or crimson.—Ditch-banks and damp places. P. VII. VIII. *Purple Loosestrife.*

2. *L. Hyssopifolia* (L.); *l. alternate linear-lanceolate* blunt, fl. axillary solitary, *bracts 2 minute* subulate, calyx-teeth all short, stam. 6.—*E. B.* 292.—St. procumbent, spreading, simple or branched. Fl. small, light purple. Whole plant glabrous.—Damp places where water has stagnated, rare. A. VI.—X. E. I.

2. PEPLIS *Linn.*

1. *P. Portula* (L.); l. opposite obovate stalked, fl. axillary solitary sessile.—*E. B.* 1211. *St.* 1. 7.—Pet. often wanting. St. 4—6 in. long, prostrate, creeping.—Damp places. A. VII. VIII. *Water Purslane.*

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Order XXIX. CERATOPHYLLEÆ.

Fl. monœcious. Perianth single, free, in many divisions. Anth. 12—20, sessile, 2-celled, 2-pointed, "cells again partially divided."—Perigone none. Ovary free, 1-celled, with 1 pendulous seed. Embryo straight; cotyledons 4, alternately smaller.

1. CERATOPHYLLUM *Linn.* The only genus.

1. *C. demersum* (L.); calyx-segments notched at the end, fruit with 2 spines near the base and terminated by the curved subulate style.—*E. B.* 947.—L. 2—4 times forked: segments linear or setaceous, acute. Basal spines sometimes scarcely distinguishable.—Ponds and ditches. P. VII.

2. *C. submersum* (L.); calyx-segments "acute and entire," fr. destitute of spines and terminated by the short curved style. —*E. B.* 679.—Segments of the l. broader and more rigid.—Ponds and ditches, rare. P. IX.? E. S.

Order XXX. ONAGRARIÆ.

Cal. tubular, adnate to the ovary wholly or in part, with 2—4 lobes valvate in æstivation. Pet. as many as the calyx-lobes, twisted in æstivation, inserted at the top of the tube. Stam. 2, 4 or 8, inserted with the petals. Ovary of several cells, with a central placenta. Style 1, filiform, stigma capitate or lobed. Fr. a berry or capsule with 4 cells. Albumen 0.—L. alternate or opposite not dotted.

1. EPILOBIUM. Cal. 4-cleft. Pet. 4. Stam. 8. Style filiform with a clavate or cruciform stigma. Caps. linear, of 4 cells, with 4 valves. Seeds numerous, bearded.

2. ŒNOTHERA. Seeds not bearded. In other respects like *Epilobium*.

3. ISNARDIA. Limb of the cal. 4-cleft. Pet. 4 or 0. *Stam.* 4. Style filiform, deciduous, *stigma capitate*. *Caps. obovate*, 4-valved, 4-celled, many-seeded, with a loculicidal dehiscence.

4. CIRCÆA. *Limb of the cal. 2-cleft*, its tube closed by a cup-shaped disk. *Pet.* 2, obcordate. Stam. 2, alternate with the petals. Style simple; stigma emarginate. *Caps. 2-celled*, cells 1-seeded, seeds erect.

1. EPILOBIUM *Linn.*

* *Style at length declining, leaves scattered, cal. without any separate tube.*

1. *E. angustifolium* (L.); l. lanceolate callose-denticulate veined, peduncles shorter than the germen, fl. buds obovate narrowed at the base and suddenly contracted into a point at the

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apex, sep. linear-lanceolate acute equalling or slightly longer than the pet., *caps.* linear straight *erect.*—*E. B.* 1947.—L. broadest at about their middle. St. 3—4 feet high. *E. macrocarpum* (Steph.) *Ann. Nat. Hist.* viii. 170.—*β. brachycarpum*; l. narrowly lanceolate, peduncles about equal to the germen, fl. buds oblong-lanceolate obliquely acute, *caps. spreading.*—L. gradually narrowing upwards from below the middle. *E. brachycarpum* (Leight.) *A. N. S.* viii. 401.—Damp shady places. P. VII.

** *Style erect, leaves alternate the lower ones opposite, cal. with a short tube.*

† Stem without elevated lines.

2. *E. hirsutum* (L.); woolly, *l.* opposite clasping *slightly decurrent* oblong-lanceolate denticulate-serrate upper ones alternate, stigmas 4-cleft, *root stoloniferous.*—*E. B.* 838.—St. 4—5 feet high, branched. L. most hairy upon the nerves. Fl. large. A very villose form is the *E. intermedium* Merat.—Wet places by rivers and ditches. P. VII. VIII. *Great Willow-herb.*

3. *E. parviflorum* (Schreb.); downy, l. sessile lanceolate denticulate lower ones opposite and slightly stalked, stigmas 4-cleft, *root fibrous without scions.*—*E. B.* 795.—St. 1—2 feet high, nearly simple. L. uniformly hairy. Fl. small. A dwarf woolly form with ovate obtuse leaves occurs in Jersey.—In wet places. P. VII. VIII.

4. *E. montanum* (L.); *l. ovate-oblong rounded at the base* toothed shortly stalked, *upper ones sessile,* st. round pubescent, stigma 4-cleft, root without scions.—*E. B.* 1177. *St.* 72. 7.—Base of the st. decumbent and rooting but not creeping. Margins and veins of the leaves pubescent. St. 1—2 feet high, slightly branched; or, in *β. ramosissimum,* 6—18 in. high, greatly branched, leaves ovate; in *γ. humile,* st. 3—6 in. high decumbent below, l. small ovate.—*δ. lanceolatum* (Koch); l. lanceolate with a wedgeshaped base all stalked. St. 1 foot high, scarcely branched but with tufts of leaves or abbreviated shoots in the axils of nearly all the leaves. *E. lanceolatum* Seb. and Mauri Fl. Rom. t. 1. f. 2., Bert. *E. mont. var. lanceolatum* Koch in St. 72. 9. Bertoloni says that the Italian plant is different from that of Koch, yet my specimens agree exactly with both the figures.—In hilly places. *γ.* on mountains. *δ.* Jersey. P. VI. VII.

5. *E. palustre* (L.); *l. narrowly lanceolate with a wedgeshaped base entire or denticulate* sessile, st. round, stigma undivided *scions filiform.*—*E. B.* 346.—L. usually quite entire, very narrow. St. 6—18 in. high, pubescence often collected into 2 decurrent lines but the stem itself is truly terete. Raceme usually nodding.—In boggy places. P. VII. VIII.

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†† Stem with elevated lines.

6. *E. tetragonum* (L.); l. oblong-lanceolate narrowing upwards from a rounded base sessile denticulate, *intermediate l. shortly decurrent*, st. with 2 or 4 elevated decurrent lines, stigma undivided, root somewhat creeping.—*E. B.* 1948.—The intermediate l. are truly decurrent and often combine so as to produce one line on each side of the stem common to both of them. St. 1—2 feet high. *Scions short*, springing from the root and terminating in *rose-shaped tufts of leaves*.—Damp places. P. VII. VIII.

7. *E. virgatum* (Fries); *l.* lanceolate narrowing upwards from a rounded base sessile denticulate *not decurrent*, st. with 2 or 4 elevated lines, stigma undivided or slightly patent or 4-fid, *scions filiform.—Florig. Brit.* f. 624.—The leaves are not truly decurrent and the elevated lines on the stem are often faint. St. 1, 2 or even 3 feet high, often decumbent and rooting. *Scions* from the lower joints of the stem, *not from the root, very slender*, not terminating in a rose-shaped tuft of leaves.—Deep ditches in peat-bogs. Lincoln, *Dr. Deakin.* Kerry. Teesdale. Dumfries. P. VII. VIII.

8. *E. roseum* (Schreb.); *l. stalked* ovate toothed, st. with 2 or 4 elevated lines, stigma undivided, root fibrous.—*E. B.* 693.—St. 1—2 feet high, branching. L. upon rather long stalks. Stigma sometimes slightly lobed.—Wet places, rare. P. VII. VIII. E. S.

9. *E. alsinifolium* (Vill.); *l. ovate* stalked repando-denticulate acuminate glabrous, *st.* simple with 2 elevated hairy lines *stoloniferous*, stigma undivided.—*E. B.* 2000.—St. mostly decumbent, nearly simple, 6—12 in. long, producing scions from its lower joints. L. narrowed but also rounded at the base. Fl. rather large.—Damp places on mountains. P. VII. E. S.

10. *E. alpinum* (L.); *l.* ovate-oblong or oblong-lanceolate obtuse entire or obsoletely toothed *attenuated below*, st. simple with 2 elevated hairy lines, stigma undivided, *root stoloniferous.—E. B.* 2001.—St. decumbent or ascending, simple, 3 or 4 in. long. L. narrowed and not rounded at the base. Fl. small. Raceme nodding. Scions from the root.—On the higher mountains. P. VII. S.

2. ŒNOTHERA *Linn.*

*? 1. *Œ. biennis* (L.); l. ovate-lanceolate flat toothed, st. rough rather hairy, pet. longer than the stam. and about half as long as the tube of the calyx.—*E. B.* 1534. *St.* 5. 5.—Fl. large, numerous, bright yellow. Caps. short, hairy. St. 2—3 feet high, leafy.—Sandy coast of Lancashire. Often an outcast from gardens. B. VII.—IX. *Evening Primrose.* E.

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3. ISNARDIA *Linn.*

1. *I. palustris* (L.); st. procumbent rooting glabrous, l. opposite ovate acute narrowed into a petiole, fl. axillary solitary sessile, pet. wanting.—*E. B. S.* 2593. *St.* 22. 3.—St. 6—8 in. long, round, branching, often reddish. Fl. with 2 small bracts at the base. Caps. ovate, obtusely quadrangular with the persistent calyx spreading horizontally.—Pools and marshes. Buxted, Suss. Petersfield, Hants. Jersey. A. VI. E.

4. CIRCÆA *Linn.*

1. *C. lutetiana* (L.); *l. ovate* or slightly cordate below repando-denticulate *opaque, petioles subterete, bracteoles* 0, pet. deeply emarginate: lobes broadly obovate, cal. hairy.—*E. B.* 1056. *St.* 23. 1.—Usually pubescent. Pet. as long as the herbaceous sepals. Fr. persistent.—Woods and hedge-banks. P. VI.—VIII. *Enchanter's Nightshade.*

2. *C. alpina* (L.); *l. cordate* acuminate repando-dentate shining, *petioles flat* with membranous wings, *bracteoles setaceous*, pet. bifid: lobes oblong, cal. glabrous.—*E. B.* 1057. *St.* 23. 2.—Usually glabrous. Pet. shorter than the membranous sepals. Fr. soon falling. Bracteoles deciduous.—*β. intermedia* (DC.); fl. larger, sep. less membranous equalling the petals. Whole plant much larger. *C. intermedia* (Ehrh.) Koch. Woods and thickets in mountainous districts. P. VII. VIII.

Order XXXI. HALORAGEÆ.

Cal. adnate with the ovary, limb minute. Pet. minute, from the throat of the calyx or 0. Stam. 1—8 inserted with the petals. Ovary of 1 or more cells. Style 0. Stigmas equal in number to the cells. Fruit dry, not bursting, usually crowned with the rim of the calyx. Seed pendulous with a small quantity of albumen.

1. MYRIOPHYLLUM. Monœcious. Cal. 4-parted. Pet. 4, fugitive, longer than the calyx in the male, small and reflexed or 0 in the female. Stam. 8. Styles 4, villose. Fr. tetragonal, separable into 4 hard nuts.

2. HIPPURIS. Calyx-limb very minute, obsoletely 2-lobed. Pet. 0. Stam. 1. Style filiform, lying in a channel of the anther. Stigma simple, acute. Fruit nucumentaceous, 1-celled.

3. CALLITRICHE. Fl. without cal. and cor., usually with 2 bracts at the base. Stam. 1. Ovaries 2, each of 2 lobes and imperfectly 2-celled. Styles 2, subulate. Fr. dry, separating into 4 indehiscent carpels.—Kützig figures and

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describes a fugacious inferior 2-parted minute calyx as sometimes found. *R. Icon. t.* 890.

1. Myriophyllum *Linn.*

1. *M. verticillatum* (L.); *fl. all axillary whorled,* bracts pinnatifid.—*E. B.* 218.—L. whorled pinnatifidly divided into setaceous segments. Bracts longer than the flowers.—Ponds and ditches, rare. P. VII. VIII.

2. *M. spicatum* (L.); *fl.* whorled *forming a leafless spike,* bracts small entire, spike erect when in bud.—*E. B.* 83.—L. 4 in a whorl, submersed.—Ponds and ditches. P. VI. VII.

3. *M. alterniflorum* (DC.); sterile fl. alternate about 6 forming a leafless spike, *spike nodding when in bud* afterwards erect, *fertile fl.* about 3 together *in axillary whorls* at the base of the spike.—*E. B. S.* 2854.—L. 3 or 4 in a whorl, submersed.—Ponds and ditches, rare. P. VII. VIII. E. S.

2. Hippuris *Linn.*

1. *H. vulgaris* (L.); l. linear 6—12 in a whorl with a callous point.—*E. B.* 763. *St.* 44. 1.—St. simple, or sometimes branching at the base, erect. Fl. in the axil of each of the upper leaves, often without stamens. In deep water the submersed leaves are elongated flaccid pellucid and not callous at the end.—In stagnant water and slow streams. P. VI. VII.

3. Callitriche *Linn.*

1. *C. verna* (L.); fr. nearly sessile: *lobes* parallel in pairs *bluntly keeled on the back, styles constantly erect,* bracts falcate.—*E. B.* 722. *Kütz. in R. Icon. t.* 881. *R.* 4746.—Fr. small "lobes converging at the back." Floating l. spathulate rarely linear, submersed l. linear, "invariably connate." Bracts crossing each other over the germen, shorter than the fruit.—Common in stagnant water and slow streams. A. or P. IV.—IX. *Water Starwort.*

2. *C. platycarpa* (Kütz.); fr. nearly sessile: *lobes* parallel in pairs *slightly winged at the back, styles* erect in the flower *reflexed closely over the fruit,* bracts falcate.—*E. B. S.* 2864. *Kütz. in R. Icon. t.* 883—889. *R.* 4748.—*Fr. twice as large as that of C. verna,* pale when dry. L. all ovate or spathulate in all the British specimens that I have seen. *C. stagnalis* (Scop.) *Kütz.* only differs from this by having the lobes of its fr. all diverging in a stellate manner.—Common on mud or in shallow water, rarely in deep water, throughout Britain. A. or P. V.—IX.

3. *C. pedunculata* (DC.); fr. stalked or nearly sessile, *lobes* parallel in pairs *obtusely keeled at the back,* styles divaricate in the fl. reflexed over the fruit, *bracts* 0.—*E. B. S.* 2606.—L. linear, upper ones broader in the middle. Fr. stalked, small, the size

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of that of *C. verna*.—*β. sessilis* (Bab.); l. linear, upper l. (floating) ovate-spathulate, fr. sessile. I should have considered this as the *C. tenuifolia* (Pers.) *Fries*, adopted that name and made it the type of the species, if Fries had not said of his plant "seminibus acutangulis."—*C. hamulata* (Kütz.) closely resembles *var. β.* but has always large falcate bracts.—Hooker's *var. γ.* I learn from Mr. Watson is *C. platycarpa*.—In marshes. *β.* lakes. A. or P. VI.—IX.

4. *C. autumnalis* (L.); fr. nearly sessile: *lobes diverging in a stellate form broadly and acutely winged at the back*, styles spreading, bracts 0, l. all linear and broadest at the base.—*E. B. S.* 2732. *R.* 4749. b.—Fr. 4 times as large as that of *C. verna*, dark brown, 1 or 2 of the lobes often abortive. L. dark green, all submerged, abrupt at the end.—Streams, rare. Anglesea. Loch of Cluny, Forfar?. Cong, Mayo. A. or P. VI.—IX.

Order XXXII. CUCURBITACEÆ.

Cal. 5-toothed, tube adnate with the ovary. Cor. 5-cleft, often scarcely distinguishable from the calyx, with reticulated veins. Stam. 5, more or less cohering. Anth. sinuose. Ovary 3—5-celled or spuriously 1-celled, placentas parietal. Style short. Stigmas lobed. Fr. more or less succulent. Seeds flat, in an arillus, embryo flat, albumen 0.—Plants succulent, climbing with tendrils.

1. BRYONIA. Cal. 5-toothed. Cor. 5-cleft. Male. Stam. 5 in 3 bundles. Fem. Style 3-fid. Fruit a globose 3-locular berry. Seeds oval, compressed, more or less bordered.

1. BRYONIA *Linn.*

1. *B. dioica* (L.); st. climbing, l. palmate 5-lobed dentate rough on both sides with callous points, fl. diœcious, cal. of the fertile fl. half as long as the corolla.—*E. B.* 439.—Tendrils simple. Fr. red.—*B. alba* (L.), which has not yet been found in England, has the fertile cal. as long as the cor. and black fruit. It is said to be monœcious.—Hedges and thickets. P. V.—IX. *Red Bryony.* E.

Order XXXIII. PORTULACEÆ.

Sep. 2, rarely 3 or 5, cohering at the base, æstivation imbricate. Pet. usually 5, from the base of the calyx. Stam. indefinite, inserted with the petals, filaments distinct, often opposite to the petals. Ovary 1-celled. Style 0. Stigmas several. Caps. opening transversely or by 3 valves, placenta central. Embryo curved round the albumen.

1. MONTIA. Cal. of 2 sepals, persistent. Cor. 5-parted, with

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3 segments smaller than the others, tube split to the base in front. Stam. 3, inserted in the throat and opposite to the smaller segments of the corolla. Ovary turbinate. Style very short. Stigmas 3, downy. Caps. of 1 cell with 3 valves and 3 seeds.

MONTIA *Linn.*

1. *M. fontana* (L.). The only species.—*E. B.* 1206. *St.* 11.1. —L. opposite, spathulate, entire. Peduncles often forked, axillary or terminal. Seeds subreniform, dotted. Valves of the caps. rolled longitudinally inwards after the seeds have fallen. St. short, ascending, rigid, or *β. major* (M. repens *Gmel.*) flaccid and elongated from growing in water.—Watery places. A. IV.—VIII.

Order XXXIV. PARONYCHIEÆ.

Cal. 5-parted, rarely 4 or 3, æstivation imbricate. Pet. minute and resembling abortive stam. or 0. Stam. indefinite, opposite the sep. (when the same number), filaments distinct or rarely united below. Ovary free. Styles 2 or 3. Fr. dry, 3-valved or indehiscent, placenta central. Embryo more or less curved. Albumen farinaceous.

1. CORRIGIOLA. Sep. 5, slightly cohering at the base. *Pet.* 5, *equalling the sepals.* Stam. 5. *Stigmas* 3, sessile. Fr. 1-seeded, indehiscent. Seed suspended by its cord which arises from the base of the capsule.—Pet. as long as the sep. inserted upon an obscurely perigynous ring at the bottom of the calyx.

2. HERNIARIA. Sep. 5, slightly cohering at the base. *Pet.* 5, *filiform,* inserted with the 5 stam. on a perigynous ring. *Stigmas* 2, nearly sessile. Fr. 1-seeded, indehiscent, membranaceous.

3. ILLECEBRUM. *Sep.* 5, slightly cohering at the base, thickened, *horned at the back.* Pet. 0 or 5, subulate, inserted with the 5 stam. on a perigynous ring. Stigmas 2. *Fr.* a 1-celled 1-seeded *furrowed* capsule, *bursting along* the 5 furrows.

4. POLYCARPON. Sep. slightly cohering at the base. *Pet.* 5, *emarginate.* Stam. 3—5. Styles 3, short. Fr. a 1-celled 3-valved *many-seeded* capsule.

5. SCLERANTHUS. *Tube of the cal.* urceolate, *contracted at the mouth by a glandular ring*; limb 5-fid. Pet. 0. Stam. 10 rarely 5, *inserted in the throat of the calyx.* Styles 2. Fr. membranous, 1-seeded, indehiscent, included in the hardened calyx.

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1. CORRIGIOLA *Linn.*

1. *C. littoralis* (L.); st. leafy on the part that bears the flowers.—*E. B.* 668.—Fl. stalked, white, small, in small clusters from the axils of the upper leaves. Stem l. oblong, narrow below. St. numerous from the crown of the root, prostrate, slender.—Sandy shores. Slapton Sands and near the Start Point, Devon. Helston, Cornwall. A. VII. VIII. E.

2. HERNIARIA *Linn.*

1. *H. glabra* (L.); st. herbaceous prostrate clothed with minute decurved hairs, l. oval-oblong, *clusters of* sessile *fl.* axillary *coalescing* on the lateral branches *into a slightly leafy spike.*—*E. B.* 206.—*St.* procumbent or subterranean, *rooting extensively.* Lateral branches resembling leafy spikes from the dense aggregation of the clusters. Cal. glabrous or with a very few hairs. L. glabrous.—*β. subciliata* (Bab.); l. more or less ciliated, but quite distinct from the following.—Very rare. Suffolk. W. of Kerry. *Mr. W. Andrews.* Ruan Minor, Corn. *Mr. Borrer.* Wilsford, Lincoln. *Dr. R. Latham.* P. VII. E. I.

2. *H. ciliata* (Bab.); st. herbaceous prostrate clothed with minute decurved hairs, l. orbicular-ovate ciliated, *clusters of* sessile *fl. axillary* upon the lateral branches and *distinct.*—*E. B. S.* 2857.—Root strong, woody. *St.* spreading extensively from the crown of the root but *scarcely rooting.* Clusters 1—3 together in small distinct bunches. Sep. tipped with a strong bristle. Very different in habit from *H. glabra.*—Very rare. Lizard Point, Cornwall. Guernsey. P. VII. VIII. E.

[3. *H. hirsuta* (L.); st. herbaceous prostrate *clothed with straight spreading hairs,* l. oval-oblong, clusters of sessile fl. axillary distinct.—*E. B.* 1379.—Cal. hairy, resembling a minute bur.—A very doubtful native. The Finchley Common plant was *H. glabra,* as I learn from a specimen gathered by the late *Mr. Dickson.* P. VII.] E. ?

3. ILLECEBRUM *Linn.*

1. *I. verticillatum* (L.) The only species.—*E. B.* 895.—St. procumbent. Fl. whorled, axillary, minute, white. L. roundish, variable in size, shorter or longer than the flowers.—Boggy ground in Devon and Cornwall. P. VII. E.

4. POLYCARPON *Linn.*

1. *P. tetraphyllum* (L.); triandrous, pet. emarginate, stem l. in fours, l. on the branches opposite.—*E. B.* 1031.—In young plants the l. are often all opposite.—Coasts of the south-west of England. A. VI. VII. E.

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5. SCLERANTHUS *Linn.*

1. *S. annuus* (L.); subdecandrous, segments of the calyx of the fr. patent acute with a very narrow membranous margin, as long as their tube.—*E. B.* 351.—Styles longer than the stamens. St. repeatedly dichotomous, green. Fl. green, often solitary in the forks of the stem, or densely corymbose.—Sandy fields. A. VI. VII.

2. *S. perennis* (L.); decandrous, segments of the calyx of the fr. connivent obtuse rounded with a broad membranous margin. —*E. B.* 352.—Styles usually shorter than the stamens. St. nearly simple or irregularly branched, procumbent, glaucous, at length reddish. Fl. variegated with green and white. L. erect, directed to one side.—Sandy fields in Norfolk and Suffolk. P. VI.—VIII. E.

Order XXXV. CRASSULACEÆ.

Sep. 3—20, more or less united at the base. Pet. the same number, regular, free or slightly connected, inserted at the base of the calyx. Stam. inserted with the pet. and the same or twice their number. Hypogynous scale (abortive stamen) 1 at the base of each ovary or obsolete. Ovaries the same number as and opposite to the pet., free or slightly connected, 1-celled. Fr. of several follicles opening on their face, with slightly albuminous seeds on the inner suture.

1. TILLÆA. Sep. 3—4. Pet. 3—4. Stam. 3—4. Carp. 3—4, constricted in the middle and 2-seeded. Hypogynous scales 0.

2. SEDUM. *Sep.* 5. *Pet.* 5. *Stam.* 10. Hypogynous scales entire. Carp. 5, many-seeded.—*S. Rhodiola* has 4 sep., 4 pet., 8 stam., 4 carp., and is imperfectly diœcious.

3. SEMPERVIVUM. *Sep.* 6—20. Pet. the same. Stam. twice as many as the pet. *Hypogynous scales laciniated.* Carp. as many as the petals.

4. COTYLEDON. Sep. 5. *Pet. cohering in a tubular* 5*-cleft corolla. Stam.* 10, *inserted on the corolla.* Hypogynous scales 5. Carp. 5.

1. TILLÆA *Linn.*

1. *T. muscosa* (L.); st. branched and decumbent at the base, fl. axillary sessile trifid.—*E. B.* 116. *R. Icon. t.* 191.—Very minute, about 1 in. long, reddish. L. opposite, oblong, obtuse, concave above, connate. Sep. ovate or lanceolate, acute, bristle-pointed. Pet. nearly subulate, white tipped with red.—On barren sandy heaths. A. VI. VII.

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2. SEDUM *Linn.*

* *Root thick, many-headed. Leaves flat.*

† Flowers yellow.

1. *S. Rhodiola* (DC.); root fleshy, l. oblong dentate smooth, fl. dicœcious by abortion, usually divided in fours.—*E. B.* 508. *Rhodiola rosea* Sm.—Fl. in a compact terminal cyme. L. acuminate, with numerous parallel nerves in the place of a midrib, branching and anastomosing so as to cover the whole surface with a network of slender nerves. Root (rhizoma) large, having a remarkable smell. St. 6—8 in. high, simple.—Wet alpine rocks. P. VI. VII. *Rose-root.*

†† Flowers white or purple.

2. *S. Telephium* (L.); st. erect, l. oval-oblong dentate smooth rounded at the base and sessile, corymb dense.—*E. B.* 1319.—*R. Icon.* t. 726.—St. 1—2 feet high. L. large and broad. In an allied species (S. maximum *Sut., R. Icon. t.* 727.) the l. are cordate and semiamplexicaule at the base; and in another (S. Telephium *R. Fl. excurs.* S. purpureum *Tausch, Ann. Sc. Nat.* 1835. 55.) they are attenuated below. Koch states that the pet. of our plant are flat and slightly channeled at the point, whilst those of *S. maximum* are slightly hooded.—Hedge-banks on a gravelly soil. P. VII. VIII. *Orpine. Live-long.*

** *Root small, weak, without any rooting shoots. L. subterete.*

3. *S. villosum* (L.); st. erect, l. linear obtuse flat above not produced at the base, pet. ovate acute, stem. l. and panicle glandular-pubescent.—*E. B.* 394.—*St.* 6. 12.—Pet. rose-coloured with a purple streak. St. 3—4 in. high.—Wet mountain pastures. P. (Sm.) B. (Koch) A. (DC.) VI. VII. E. S.

*** *Root small, producing rooting shoots.*

† Flowers white.

4. *S. album* (L.); *flowering st. erect,* barren st. procumbent rooting, *l. oblong* cylindrical obtuse spreading, pet. lanceolate, *panicle* much branched *glabrous.*—*E. B.* 1578.—Pet. white. St. 4—5 in. high, purplish, leafy.—*β. turgidum* (DC.); l. oblong-ovate terete gibbous beneath. Perhaps a distinct species. *S. turgidum* Ram.—Rocks and walls, not common. P. VII. VIII.

5. *S. dasyphyllum* (L.); *flowering* and barren *st.* procumbent, *l. ovate* obtuse *fleshy* gibbous sessile, pet. and sep. ovate obtuse, *panicle* small *glandular-pubescent.*—*E. B.* 656.—Pet. white. L. very thick, glaucous, often tinged with red, crowded and opposite on the barren shoots. Flowering st. 3—4 in. long.—Rocks and walls, rare. P.? VI. VII.

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6. *S. anglicum* (Huds.); st. procumbent at the base ascending, *l.* ovate fleshy gibbous *spurred at the base*, pet. lanceolate acute, sep. ovate bluntish, *cyme bifid smooth.*—*E. B.* 171.—Pet. white spotted with red. L. mostly alternate. Flowering st. 3—6 in. long.—Sandy and rocky places. A. VII. VIII.

†† Flowers yellow.

7. *S. acre* (L.); l. ovate thick tumid spurred at the base, pet. lanceolate acute, *sep.* ovate *obtuse gibbous at the base*, cyme trifid smooth.—*E. B.* 839.—L. closely imbricated on the barren shoots, very acrid.—Walls, rocks and sandy ground. P. VI. VII. *Wall Pepper.*

8. *S. sexangulare* (L.); *l. linear* obtuse terete spurred at the base, pet. lanceolate acute, *sep.* lanceolate *acute not gibbous*, cyme trifid smooth.—*E. B.* 1946.—L. much longer than in the last, arranged in 6 rows on the barren shoots. I have seen no British specimens.—On old walls, very rare. P. VII. E. S.

9. *S. reflexum* (L.); *l. subulate* scattered spurred at the base *convex on both sides* the lowermost recurved, fl. cymose, sep. ovate rather acute, pet. lanceolate obtuse.—*E. B.* 695.—Barren st. long with numerous patent or reflexed branches. Cyme nearly level-topped, its outer branches spreading or even recurved.—*β. glaucum*; l. more slender glaucous not recurved. *S. glaucum* (Sm.) *E. B.* 2477.—Walls, common. *β.* Dry hills, rare. P. VII. VIII.

10. *S. rupestre* (L.); *l. linear-lanceolate* spurred at the base *flattened*, fl. imperfectly cymose, sep. elliptical obtuse, pet. lanceolate.—*E. B.* 170. *S. elegans* Lej., Koch.—Barren st. short with densely imbricated adpressed leaves. Fl. more corymbose than cymose.—On limestone rocks. Bristol. Cheddar. Ormes Head, &c. P. VI. VII.

11. *S. forsterianum* (Sm.); l. lanceolate spurred at the base flattened, cyme round-topped compact, sep. elliptical, pet. lanceolate.—*E. B.* 1802.—Barren st. short, erect, densely leafy, *l. forming small roselike tufts.* Fl. truly cymose. Very different from the last in general appearance but difficult to distinguish on paper.—Rocks in Wales and Shropshire. P. VI. VII. E.

3. SEMPERVIVUM *Linn.*

*1. *S. tectorum* (L.); l. glabrous ciliated, pet. 12 or more entire at the margins, hypogynous scales short convex resembling glands.—*E. B.* 1320.—L. succulent, forming large roselike tufts.—Walls and roofs, common. P. VII. *Houseleek.*

4. COTYLEDON *Linn.*

1. *C. Umbilicus* (L.); lower l. peltate concave orbicular, bracts

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entire, fl. pendulous.—*E. B.* 325.—Raceme usually simple. St. 6—12 in. high, leaves mostly collected at its base. Fl. greenish-yellow.—Rocks and walls in the west. P. VI.—VIII.

[2. *C. lutea* (Huds.); lower l. somewhat peltate, upper l. crenate or toothed, bracts toothed, fl. erect.—*E. B.* 1522.—Fl. bright yellow.—Probably not a native. P. VII.] E.?

Order XXXVI. GROSSULACEÆ.

Cal. superior, 4—5-cleft, regular. Pet. 4—5, small, inserted at the mouth of the tube and alternating with the stamens. Ovary 1-celled, with 2 opposite parietal placentas. Style 2—4-cleft. Berry 1-celled, many-seeded. Albumen horny.

1. RIBES. Cal. 5-cleft. Pet. and stamens inserted at the mouth of the tube. Berry many-seeded, crowned with the persistent calyx.

1. RIBES *Linn.*

* *Peduncles* 1—3-*flowered. Stems spinous.*

† 1. *R. Grossularia* (L.); peduncles 1—2 or rarely 3-flowered with 2 minute bracts, cal. bellshaped, sep. reflexed oblong, pet. ovate.—*E. B.* 1292 and 2057. *St.* 4. 4. and 44. 13.—Thorns 1—3 at the base of the young branches. Germen and fruit smooth or pubescent or glandular. L. rounded 3—5-lobed and cut, glabrous or hairy.—Hedges and thickets, doubtfully native. Sh. IV. V. *Gooseberry.*

** *Flowers racemose. Spines none.*

2. *R. alpinum* (L.); *racemes upright* both in flower and fruit glandular-pilose, *bracts* longer than the pedicels *lanceolate, cal. glabrous,* l. shining beneath.—*E. B.* 704. *St.* 51. 6.—Racemes densely flowered. Limb of the calyx nearly flat. Berries scarlet. L. in 3 acute deeply serrate lobes.—Woods in the north, rare. Sh. IV. V. E. S.

3. *R. nigrum* (L.); *racemes pendulous* downy with a simple pedicel at the base of each, *bracts subulate* shorter than the pedicels, *cal. pubescent,* l. glandular-punctate beneath.—*E. B.* 1291.—Racemes lax. Calyx-limb bellshaped. Berries large, black. L. in 3—5 acute serrated lobes.—In damp and swampy places. Sh. V. *Black Currant.*

4. *R. rubrum* (L.); racemes mostly glabrous and pendulous, *bracts* shorter than the pedicels *ovate, cal.* nearly flat *glabrous,* l. obtusely 5-lobed.—*E. B.* 1289.—Fl. greenish. Fr. red.—*β. petræum* (Hook.); racemes slightly downy, in flower upright, in fruit pendulous. *R. petræum* Sm. *E. B.* 705. not *Wulf.*—

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γ. spicatum (Hook.); racemes erect both in flower and fruit, "fl. nearly sessile." *R. spicatum* Robs. *E. B.* 1290.—*R. petræum* (Wulf.) has a bellshaped coloured calyx ciliated at the margin, and leaves deeply divided into somewhat triangular acute lobes.—Woods in mountainous districts. *β.* North of England, Scotland. *γ.* Richmond, Yorkshire. Sh. V. VI. *Red Currant.*

Order XXXVII. SAXIFRAGEÆ.

Cal. 4—5-cleft, superior or inferior. Pet. 4—5, rarely 0. Stam. 5—10, free, perigynous or hypogynous. Glandular disk present or wanting. Ovary of 2 carpels cohering by the inflexed sides or margins. Styles 2, persistent. Caps. 2-valved. Seeds numerous. Albumen fleshy.

1. SAXIFRAGA. Cal. 5-fid or 5-parted, more or less adnate to the ovary or free. Cor. of 5 petals. Stam. 10. Styles 2, persistent. Caps. 2-celled, with 2 beaks, opening by a pore between the beaks.

2. CHRYSOSPLENIUM. Cal. 4-fid, half superior. Cor. 0. Stam. 8, rarely 10. Styles 2. Caps. 1-celled, with 2 beaks, opening into the form of a cup.

1. SAXIFRAGA *Linn.*

Sec. 1. With decumbent barren shoots at the base.

* *Cal. reflexed inferior, fl. panicled, flowering stems leafless.* Robertsonia.

† Filaments enlarged upwards.

1. *S. umbrosa* (L.); *l. obovate* with cartilaginous crenatures or sharp notches tapering at the base into *dilated flat footstalks,* panicle racemose, caps. superior.—*α. crenata* (Bab.); l. bluntly crenate spreading.—*β. crenato-serrata* (Bab.); l. acutely crenate or subserrate spreading. *E. B.* 663.—*γ. punctata* (Don); l. nearly round acutely serrate erect. *S. punctata* (Haw.) *R. Icon. t.* 622, 623.—*δ. serratifolia* (Mack.); l. oblong acutely serrate erect. *S. serratifolia* (Mack.) *R. Icon. t.* 624.—See *Ann. Nat. Hist.* viii. 321. *t.* 11.—†*α.* Yorkshire, a doubtful native. Specimens from Heselden Gill are exactly the plant of the Pyrenees and do not agree with the *E. B.* figure said to have been taken from a plant gathered there.—*β. γ. δ.* (Indigenous.) West of Ireland. P. VI. *London Pride. St. Patrick's Cabbage.* E.? I.

2. *S. elegans* (Mack.); *l. round* smooth shining acutely serrate, *footstalks broad flat above convex beneath,* panicle racemose, caps. superior.—*R. Icon. t.* 625.—L. not tapering into the footstalks.—Very rare. Top of Turk Mountain, Killarney. P. VI.—I.

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3. *S. hirsuta* (L.); *l. oval* sharply serrate, *footstalks linear semicylindrical channeled* hairy, panicle racemose, caps. superior. —*E. B.* 2322. *R. Icon. t.* 621. *Footstalks* slightly *tapering* upwards. L. longer than broad.—Very rare. Gap of Dunloe and Connor Hill, Kerry. P. VI. I.

4. *S. Geum* (L.); *l. transversely oval* or reniform acutely crenate or serrate, *footstalks semicylindrical channeled* hairy, panicle racemose, caps. superior.—*E. B.* 1561.—L. always rather broader than long, usually hairy, sometimes glabrous, often beautifully reticulated with purple beneath.—West of Ireland. Naturalized near Edinburgh. P. VI. S.? I.

†† Filaments subulate.

5. *S. stellaris* (L.); *l. oblong-wedgeshaped* dentate-serrate narrowed below *scarcely stalked,* panicle corymbose of few flowers. —*E. B.* 167. *St.* 35. 3.—Stems tufted. Fl. stalks 1—5 in. high, naked. Pet. ovate, clawed, white with 2 transverse yellow spots on their lower half.—*β. integrifolia* (Hook.); l. quite entire.—Damp rocks on mountains. *β.* Ben Nevis. P. VII.

** *Cal. at length reflexed inferior, st. leafy, l. undivided.* Hirculus.

6. *S. Hirculus* (L.); st. erect, barren shoots prostrate filiform, l. alternate lanceolate flat entire, root-l. narrowed into a footstalk, sep. obtuse fringed at the margin, pet. obtuse with 2 callous points near the base.—*E. B.* 1009. *St.* 35. 8.—Fl. few or solitary, terminal. Pet. obovate spreading, yellow dotted with red. St. 4—8 in. high, downy in the upper part.—Wet moors, rare. P. VIII.

*** *Cal. erect or spreading half inferior, st. leafy, l. with a puncture above near the point.*

7. *S. aizoides* (L.); st. decumbent below, l. alternate linear-oblong mucronate ciliated entire flat above convex beneath, sep. blunt.—*E. B.* 39. *St.* 35. 9.—Fl. in a leafy panicle, with glutinous downy stalks. Pet. bright yellow often spotted with scarlet. St. 3—6 in. long. L. rigidly ciliated.—*β. dentata,* l. with several strong teeth.—Wet places on mountains. *β.* Orkney. P. VII. —IX.

**** *Cal. erect or spreading superior or half inferior, st. more or less leafy, l. lobed not punctured near the point.*

8. *S. muscoides* (Wulf.); "radical l. crowded linear obtuse entire or trifid, st. nearly naked few-flowered, pet. oblong obtuse a little longer than the superior calyx." *Hooker.*—"Pet. nearly linear, cal. almost naked." *Sm.*—*β. pygmæa* "Pet. obovate, cal. glandular." *Sm. E. B.* 2314.—Said to have been found in Westmoreland. *β.* Highlands of Scotland. P. V. E.? S.

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9. *S. cæspitosa* (L.); *radical l.* crowded 3—5-cleft *obtuse* veined fringed, fl. 1—5, "pet. rounded 3-nerved," *cal. half inferior*, sep. obtuse.—*E. B.* 794.—Germen broad and rounded below. "Common base of the l. 5-ribbed." Mr. Mackay reduces *S. incurvifolia* to this. Fl. Hib. 68.—β. *decipiens* (Sm.); larger and with more numerous flowers.—*E. B.* 455.—Caernarvonshire. Westmoreland (Dickson!). Aberdeenshire. Kerry. P. V. VI.

10. *S. hirta* (Sm.); *l.* crowded 3—5-cleft: *lobes lanceolate pointed* fringed, fl. few (usually 3) loosely panicled, *pet. obovate* 3-nerved, cal. half inferior, *sep. ovate acute.*—*E. B.* 2291. (good) —L. on the barren shoots as well as the radical l. 3-cleft, the lateral lobes often divided half way down, lobes diverging. St. 3—6 or 8 in. long, weak, ascending, hairy, glandular, bearing 2 or 3 deeply 3-lobed leaves and a few simple linear bracts. Lateral peduncles ultimately much overtopping the intermediate one. —On the summit of Brandon Mountain, Kerry; and Galty-more, Tipperary. P. VII. L.

11. *S. affinis* (Don); l. crowded 3—5-lobed with a very broad base those of the trailing shoots 3-cleft: lobes linear acute fringed, fl. few (2—4) corymbose, *pet. oblong* 3-nerved *inflexed at the edges*, cal. half inferior deeply divided into *subulate* acute *sepals.*—The 5-cleft l. few; lobes of the others nearly parallel or slightly spreading. St. 3—4 in. high, erect, with a few linear simple leaves, glandular.—I have examined this plant and *S. hirta* upon Brandon Mountain and consider them as distinct from *S. hypnoides.*—Summit of Brandon Mountain, Kerry. P. VII. I.

12. *S. hypnoides* (L.); radical l. 3—5-cleft, *those of the trailing shoots undivided* or 3-*cleft*: lobes all *acute bristle-pointed* and fringed, calyx half inferior, *sep. ovate* acute.—*E. B.* 454, 2276, 2277. *S. platypetala, hypnoides, elongella, leptophylla,* and *denudata* of Smith.—α. l. of the trailing shoots undivided.—β. l. of the trailing shoots 3-cleft, lobes broad.—γ. as β. with linear lanceolate widely spreading lobes.—These varieties are scarcely worth notice. In all of them the *lobes of the l. are gradually narrowed* from just above the middle *to an acute* point.—Mountains. P. V.—VII.

13. *S. lætevirens* (Don); trailing shoots procumbent elongated, l. 5- or 3-parted: lobes linear acute, *calyx-segments lanceolate mucronate,* pet. spathulate emarginate. *Don.*—"The recurved points of the segments of the l. may possibly distinguish this as a species." *W. Wilson.*' I know nothing of this plant.—Mountains of Angus, Aberdeenshire, and north of Loch Lomond. P. VI. S.

14. *S. pedatifida* (Sm.); radical l. and also those of the short sterile shoots upon very long stalks divided into 3 deep *linear-lanceolate* acute *lobes,* lateral lobes deeply bifid, *calyx almost supe-*

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rior, sep. linear-lanceolate as long as the capsule shorter than the germen.—*E. B.* 2278.—Fl. in a cymose panicle, numerous, white. St. a foot high, solitary. Peduncles, germens and cal. downy and viscid. Caps. not tubercular. *S. ladanifera,* which is confounded with this by Seringe, has oblong sepals about half as long as the tubercular caps. in my Pyrenean specimen.—Clova Mountains. *G. Don.* P. V. S.

Sec. 2. Without barren shoots at the base.

* *Stem leafy.*

15. *S. tridactylites* (L.); *st.* panicled erect *leafy.* l. wedge-shaped 3—5-fid with a flat petiole, lowermost often simple and spathulate, *peduncles* 1-flowered much longer than the fruit *with 2 bracts at the base,* cal. superior.—*E. B.* 501. *St.* 33. 15.—Whole plant viscid, 2—4 in. high. Fl. scattered, numerous, small, white.—Walls and dry banks. A. IV.—VII.

16. *S. granulata* (L.); st. erect slightly leafy, *radical l. reniform crenately lobed* with channeled petioles, stem l. nearly sessile 3—5-fid, fl. in a cymose panicle, *cal. half inferior,* pet. obovate-oblong 2 or 3 times as long as the sepals, *roots granulated.*—*E. B.* 500.—Root bearing numerous small round downy bulbs. St. 6—12 in. high. Fl. large, white.—Gravelly banks. P. V.

17. *S. cernua* (L.); *st.* erect *simple* 1-*flowered* leafy, radical l. reniform palmately lobed stalked, upper l. nearly sessile subtrifid, uppermost entire, *axils bearing bulbs, cal. quite inferior.*—*E. B.* 664.—Seldom producing more than 1 fl., often 0, all of them being converted into minute reddish bulbs. St. 3—6 in. high.—"Dry rocks" on the highest summits of the Breadalbane Mountains, rare. P. VI.—VIII. S.

18. *S. rivularis* (L.); *st.* ascending *branched* few-flowered leafy, radical l. subreniform stalked with 3—5 rounded lobes, uppermost l. lanceolate entire, cal. half inferior.—*E. B.* 2275.—St. 1—2 in. long. Fl. few, stalked, white.—Damp places on the highest summits of mountains. P. VIII. S.

** *Stem leafless.*

19. *S. nivalis* (L.); st. erect leafless, *l. all radical roundish-obovate* dentate-serrate narrowed into a footstalk, *fl. capitate,* cal. half inferior, pet. longer than the calyx.—*E. B.* 440. *St.* 35. 4. St. 3—6 in. high, usually simple, sometimes with 1 branch. Fl. in a dense cluster, white.—Alpine rocks in Wales and Scotland. P. VII.

Sec. 3. Stems procumbent with opposite l. and terminal flowers.

20. *S. oppositifolia* (L.); st. procumbent, *l. opposite* oblong obtuse fringed, sep. ciliated without glands, pet. ovate.—*E. B.* 9.—Very different from our other species. Fl. large, purple.—Damp alpine rocks. P. IV. V.

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2. CHRYSOSPLENIUM *Linn.* Golden Saxifrage.

1. *C. alternifolium* (L.); *l. alternate,* lower l. subreniform hairy crenate upon long stalks.—*E. B.* 54. *St.* 12.—Crenatures of the lower l. emarginate, upper l. glabrous with the crenatures often rather acute. St. erect, 4—5 in. high, branching only near the top. Fl. umbellate, nearly sessile, deep yellow. Stam. usually 8.—The anthers of this genus have only 1 cell and perhaps ought to be considered as 4 or 5 divided to the base of their filaments.—Boggy places. P. IV.

2. *C. oppositifolium* (L.); *l. opposite,* lower l. roundish-cordate shortly stalked wavy.—*E. B.* 490. *St.* 4. 6.—St. branching from the base, 4—6 in. long, decumbent, straggling. Fl. paler and more scattered than in the last. L. usually glabrous, sometimes slightly hairy. Stam. usually 8.—Damp shady places. P. IV.V.

Order XXXVIII. UMBELLIFERÆ.

Cal. 5-toothed or entire, adherent to the ovary, limb often obsolete. Pet. 5, usually inflexed at the point. Stam. 5, inserted with the pet. on the mouth of the calyx. Ovary 2-celled, crowned with a double fleshy disk (stylopodium). Styles 2. Fr. consisting of 2 carpels (mericarps) adhering by their face (commissure) to a common axis from which they ultimately separate and become pendulous. Seed solitary pendulous. Albumen horny.—Inflorescence umbellate.—Each mericarp has 5 primary ridges and often 4 intermediate secondary ones with channels between, and in the substance of the pericarp are usually linear receptacles of oil (vittæ) under the channels or rarely the ridges. These parts are sometimes either wanting or only slightly apparent.

Suborder I. ORTHOSPERMÆ.

Seed or albumen not furrowed in front.

* *Umbels imperfect or simple.*

Tribe I. *HYDROCOTYLEÆ.* Fr. laterally compressed, its back even or acute.

1. HYDROCOTYLE. Cal.[1] obsolete. Pet. ovate, entire, acute, plane at the end. Fr. of 2 flat nearly orbicular mericarps or carpels, each with 5 filiform ridges, of which the dorsal and 2 lateral are often obsolete, the 2 intermediate ones arched. Vittæ 0. Commissure linear.

Tr. II. *SANICULEÆ.* Transverse section of the fr. nearly round.

2. SANICULA. *Cal. of 5 leafy teeth. Pet.* erect, obovate, *with*

[1] By calyx, throughout this Order, the free margin is intended.

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a long inflexed connivent point. *Fr.* subglobose, *covered with hooked spines,* ridges 0, vittæ numerous.

3. ASTRANTIA. Cal. of 5 leafy teeth. Pet. erect, connivent, with a long inflexed point. *Fr. with* 5 *plicate-dentate ridges,* vittæ 0.

4. ERYNGIUM. Cal. of 5 leafy teeth. Pet. erect, oblong, with a long inflexed point. *Fr.* obovate, *covered with chaffy scales without ridges* or vittæ.

** *With perfect or compound umbels.*

† With primary ridges only.

Tr. III. *AMMINEÆ.* Fr. laterally compressed or didymous.

5. CICUTA. *Cal. of* 5 *leafy teeth.* *Pet. obcordate* with an inflexed point. Fr. subdidymous. Carp. with 5 equal broad flattened ridges, the lateral marginal; interstices with single vittæ.

6. APIUM. *Cal. obsolete.* *Pet.* roundish *entire* with a small involute point. Fr. roundish ovate, didymous. Carp. with 5 filiform equal ridges with single vittæ in the interstices.—*Involucre* 0.

7. PETROSELINUM. Cal. obsolete. Pet. roundish entire with a narrow incurved point. *Fr. ovate.* Carp. with 5 filiform equal ridges with single vittæ in the interstices. Carpophore bipartite.—Involucre, partial of many, general of few leaves.

8. TRINIA. Cal. obsolete. *Pet. of the barren fl. lanceolate* with the point inflexed, *of the fertile fl. ovate* with a short inflexed point. Fr. ovate. Carp. with 5 filiform prominent equal *ridges with a single vitta beneath each of them. Interstices without vittæ.*

9. HELOSCIADIUM. Cal. of 5 teeth or obsolete. *Pet. ovate* entire with a straight or incurved apiculus. Fr. ovate or oblong. Carp. with 5 filiform prominent equal ridges. *Interstices with single vittæ.* Carpophore entire.

10. SISON. Cal. obsolete. *Pet. broadly obcordate, deeply emarginate* with an inflexed point. Fr. ovate. Carp. with 5 filiform equal ridges. *Interstices with* single abbreviated *clavate vittæ.*

11. ÆGOPODIUM. Cal. obsolete. Pet. obovate, emarginate with an inflexed point. Fr. oblong. Carp. with 5 filiform ridges. *Interstices without vittæ.* Stylopodium conical.

12. CARUM. Cal. obsolete. *Pet.* obcordate *with a narrow acute inflexed point.* Fr. oblong. Carpels with 5 filiform ridges. Interstices with single vittæ. *Stylopodium depressed.*

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13. Bunium. Cal. obsolete. *Pet.* obcordate *with a broad obtuse inflexed point.* Fr. oblong. Carp. with 5 filiform equal ridges. Interstices with 1 or 3 vittæ. *Stylopodium conical.*

14. Pimpinella. Cal. obsolete. Pet. obcordate with an inflexed point. Fr. ovate. Carp. with 5 filiform equal ridges. *Interstices with* 3 *or more vittæ. Stylopodium tumid.* Styles of the fr. divaricated or recurved.—*Involucres* 0.

15. Sium. Cal. of 5 small teeth. Pet. obcordate with an inflexed point. Fr. ovate or subdidymous. *Carp. with* 5 filiform equal *obtuse ridges.* Interstices with 3 or more vittæ. *Stylopodium depressed or shortly conical.* Styles of the fr. divaricated or recurved.—Involucres both universal and partial.

16. Bupleurum. Cal. obsolete. *Pet. roundish, entire with a closely involute broad retuse point.* Fr. subdidymous. Carp. with equal, winged, or filiform and sharp, or obsolete ridges. Interstices with or without vittæ. Stylopodium depressed.

Tr. IV. *SESELINEÆ.* Section of the fr. rounded or roundish.

17. Œnanthe. Cal. of 5 lanceolate teeth. *Pet. obcordate* with an inflexed point. Fr. ovate-cylindrical or subturbinate, crowned with the long *erect styles.* Carpels more or less corky, with 5 blunt convex ridges. Interstices with single vittæ.

18. Æthusa. Cal. obsolete. *Pet. obcordate with an acute inflexed point.* Fr. shortly ovate crowned with the *reflexed styles.* Carp. with 5 thick acutely-keeled ridges. Interstices with single vittæ.

19. Fœniculum. *Cal. obsolete. Pet. roundish, entire with a broad obtuse inflexed lobe.* Fr. oblong. Carp. with 5 prominent obtusely-keeled ridges. Interstices with single vittæ. Stylopodium conical.

20. Libanotis. *Cal. with elongate linear deciduous teeth.* Pet. obcordate with a broad inflexed lobe. Fr. ovate, slightly dorsally compressed. Carp. with 5 thick blunt ridges. Interstices with single vittæ. Stylopodium conical, 2 or 3 times shorter than the reflexed styles.

21. Ligusticum. Cal. of 5 small teeth, sometimes obsolete. *Pet. ovate acutely emarginate with* an inflexed lobe and *short claw.* Fr. elliptical terete or slightly dorsally compressed. *Carp. with* 5 *sharp somewhat winged ridges.* Interstices and commissure with many vittæ.

22. Silaus. Cal. obsolete. *Pet.* ovate-oblong *entire or slightly*

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emarginate with an inflexed lobe, *sessile truncate or appendaged at the base.* Fr. as in *Ligusticum.*

23. MEUM. Cal. obsolete. *Pet.* entire, elliptical, *acute at both ends,* with an incurved point. Fr. as in *Ligusticum.*

24. CRITHMUM. Cal. obsolete. *Pet. elliptical, entire, involute.* Fr. elliptical, terete. Carp. with 5 elevated sharp slightly winged ridges. *Seed free with numerous vittæ.*

Tr. V. *ANGELICEÆ.* Fr. much and dorsally compressed, with a double wing on each side.

25. ANGELICA. Cal. obsolete. Pet. lanceolate, entire, acuminate, incurved. *Fr. solid.* *Carp. with* 3 dorsal elevated *filiform ridges* and 2 marginal ridges dilated into broad wings. *Interstices with single vittæ.*

[26. ARCHANGELICA. Cal. minutely 5-toothed. Pet. ovate, entire, acuminate, incurved. *Fr. nucleated.* *Carp. with* 3 dorsal elevated *thick ridges,* and 2 marginal ridges dilated into broad wings. *Interstices without vittæ.* *Seed free, with numerous vittæ.*]

Tr. VI. *PEUCEDANEÆ.* Fr. much and dorsally compressed, with a single wing on each side which is flat or thickened towards the edge.

27. PEUCEDANUM. Cal. of 5 teeth or obsolete. Pet. obovate or obcordate with an inflexed point. Fr. with a dilated thin flat margin. Carp. with equidistant ridges, 3 dorsal filiform, 2 *lateral close to the base of the dilated margin* obsolete. Interstices with single vittæ.

28. PASTINACA. Cal. of 5 very small or nearly obsolete teeth. *Pet. roundish, entire,* involute with an acute point. Fr. with a dilated flat margin. Carp. with slender ridges, 3 dorsal equidistant, 2 *lateral distant near the outer edge of the dilated margin.* Interstices with single *linear vittæ.*

29. HERACLEUM. Cal. of 5 minute teeth. *Pet. obcordate* with an inflexed point, *outer ones radiant.* Fr. as in *Pastinaca. Vittæ abbreviated clubshaped.*

30. TORDYLIUM. Cal. of 5 awlshaped teeth. Pet. obcordate with an inflexed lobe, outer ones radiant. *Fr. with a thickened wrinkled margin.* Carp. with slender ridges, 3 dorsal equidistant, 2 *lateral distant close to the thickened margin.* Interstices with 1—3 vittæ.

†† With primary and secondary ridges.

Tr. VII. *DAUCINEÆ.* Fr. somewhat dorsally compressed. Carp. with 5 primary ridges, the lateral ones on the inner face; and 4 secondary forming rows of prickles.

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31. Daucus. Cal. of 5 teeth. Pet. obcordate with an inflexed lobe, exterior usually radiant and bifid. Fr. dorsally compressed. Carp. with bristly primary ridges; secondary ridges equal winged with 1 row of spines.

Suborder II. CAMPYLOSPERMÆ.

Seed inflexed at the margin or deeply furrowed in front.

Tr. VIII. *CAUCALINEÆ.* Fr. contracted or rounded. Carp. with the lateral primary ridges on the inner face; 4 secondary more prominent, prickly.

32. Caucalis. Cal. of 5 teeth. Pet. obcordate with an inflexed point, outer ones radiant and bifid. Fr. slightly laterally compressed. Carp. with filiform bristly primary, and more or less prominent secondary ridges, all bearing 1—3 rows of prickles.

33. Torilis. Cal. of 5 teeth. Pet. obcordate with an inflexed point, outer ones radiant and bifid. Fr. slightly laterally compressed. *Carp. with* bristly primary ridges; the secondary hidden by the *numerous prickles which occupy the interstices.*

Tr. IX. *SCANDICINEÆ.* Fr. compressed or contracted on the sides, often beaked. Carpels with primary ridges only.

34. Scandix. Cal. obsolete. Pet. obovate with an inflexed point. *Fr. with a very long beak. Carp. with* 5 *obtuse ridges.*

35. Anthriscus. Cal. obsolete. Pet. obcordate with an inflexed short point. Fr. with a *short beak. Carp. without ridges: beak with* 5 *ridges.*

36. Chærophyllum. Cal. obsolete. Pet. obcordate with an inflexed point. *Fr. not beaked. Carp. with* 5 *equal obtuse ridges. Interstices with single vittæ.*

37. Myrrhis. Cal. obsolete. Pet. obcordate with an inflexed point. Fr. not beaked. *Carp. covered with a double membrane*: the outer with elevated keeled ridges hollow within, inner close to the seed. Vittæ 0.

Tr. X. *SMYRNEÆ.* Fr. turgid compressed or contracted at the sides. Carp. with primary ridges only.

38. Echinophora. Cal. of 5 teeth. Pet. obcordate with an inflexed point, the exterior larger and bifid. Fl. of the ray sterile on long stalks, fertile central and solitary. Fr. ovate, terete, imbedded in the enlarged receptacle. Carp. with 5 depressed equal striated wavy ridges. Interstices with single vittæ covered by a cobweblike membrane.

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39. CONIUM. Cal. obsolete. Pet. obcordate with a short inflexed point. Fr. ovate, laterally compressed. *Carp. with 5 prominent wavy or crenate ridges,* the lateral marginal. *Interstices* striated: vittæ 0.

40. PHYSOSPERMUM. Cal. of 5 teeth. Pet. obcordate with an inflexed point. Fr. laterally compressed. *Carp.* reniform-globose, didymous, *with 5 filiform slender equal ridges, the lateral within the margin. Interstices with single vittæ.*

41. SMYRNIUM. Cal. obsolete. Pet. lanceolate or elliptical, entire, with an inflexed point. Fr. laterally compressed. *Carp.* reniform-oblong, didymous, *with 3 dorsal prominent sharp ridges and 2 lateral marginal nearly obsolete ones. Interstices with many vittæ.*

Suborder III. CŒLOSPERMÆ.

Seed with the base and apex curved inwards in front.

Tr. XI. *CORIANDREÆ.* Fr. globose or didymous. Primary ridges of the carp. often obsolete, secondary more prominent, all apterous.

42. CORIANDRUM. Cal. of 5 teeth. Pet. obcordate with an inflexed point, outer ones radiant and bifid. Fr. globose. Carp. with the primary ridges obsolete, the 4 secondary conspicuous prominent keeled. Interstices without vittæ. Commissure with 2 vittæ.

Suborder I. *Orthospermæ.* Tribe I. *Hydrocotyleæ.*

1. HYDROCOTYLE *Linn.*

1. *H. vulgaris* (L.); l. peltate orbicular doubly crenate; umbels capitate of 5 fl. often proliferous, fr. emarginate below.—*E. B.* 751.—Fl. and fr. almost sessile. Umbels or rather heads often proliferous in the centre and bearing a second head. St. creeping extensively. L. springing from the joints of the stem, upon stalks which are considerably longer than the peduncles.—Bogs and marshy places. P. V.—VIII. *Penny-wort.*

Tribe II. *Saniculeæ.*

2. SANICULA *Linn.*

1. *S. europæa* (L.); lower l. palmate 3—5-lobed: lobes trifid unequally serrate, fertile fl. sessile, barren fl. slightly stalked.—*E. B.* 98.—Umbels numerous, capitate, in an irregular slightly umbellate panicle. Styles persistent, reflexed. St. ascending, about a foot high.—Woods and thickets. P. VI. VII.

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3. Astrantia *Linn.*

†1. *A. major* (L.); lower l. palmately 5—7-fid: lobes oblong acute unequally inciso-serrate involucral l. entire, cal.-teeth ovate-lanceolate narrowed to an acute point.—*St.* 29. 8.—Involucre as long as the umbel, usually straw-coloured.—Woods in hilly districts. Between Whitbourne and Malvern. Above Stokesay Castle, near Ludlow. Mr. Borrer has seen it in the latter place and considers it to have been introduced "ages ago." P. VI.—VIII. E.

4. Eryngium *Linn.*

1. *E. maritimum* (L.); *radical l. roundish plaited* spinous stalked, upper l. amplexicaule palmately lobed, *involucral l. 3-lobed* spinous longer than the heads, scales of the receptacle 3-lobed.—*E. B.* 718.—St. 1 foot or more in height, branched, leafy. Fl. in heads rather than umbels, pet. blue.—Sandy seashores. P. VII. VIII. *Sea Holly.*

2. *E. campestre* (L.); *radical l.* 2 *or* 3 *times pinnatifid* spinous stalked, st. l. amplexicaule bipinnatifid, *involucral l. lanceolate spinous* longer than the heads, scales of the receptacle undivided.—*E. B.* 57.—More bushy and slender than the last. Pet. purplish. Petioles thick, semiterete, channeled.—On waste ground, very rare. P. VII. VIII. E. S.

The *Eryngium* found on the banks of the Tyne and called *E. campestre* is perhaps different (judging from a specimen from Jarrow); it has—*radical l. 3-lobed* stalked coarsely spinous-dentate: lobes broad the intermediate one 3-fid, stem l. sessile palmately divided into 3—5 lanceolate dentate-spinous lobes with a broad common base, *involucral l.* 3—6 *lanceolate entire* keeled longer than the ovate heads, scales of the receptacle undivided. St. round, the upper branches triquetrous. Petioles slender and narrowly winged. P. "VII. VIII."—The plant found at Friars Goose, and noticed in the time of Ray, must be examined before we can determine the claim of this plant to be considered as a true native.

Tribe III. *Ammineæ.*

5. Cicuta *Linn.*

1. *C. virosa* (L.); fibres of the root filiform, l. tripartite: leaflets linear-lanceolate acute serrate decurrent.—*E. B.* 479.—St. 3—4 feet high, very thick round and hollow below. Lower l. on long stalks: leaflets 1—2 in. long. Umbels large; general involucre 0, or of 1 or 2 slender leaflets; partial of numerous subulate leaflets. Fl. white. Herb very poisonous.—Ponds and ditches, not common. P. VI.—VIII. *Water Hemlock. Cowbane.*

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6. Apium *Linn.*

1. *A. graveolens* (L.); glabrous, l. pinnate or ternate, leaflets of the upper l. wedgeshaped and notched at the end.—*E. B.* 1210.—St. 1—2 feet high, branched, furrowed, leafy. Umbels terminal or lateral, frequently almost sessile, accompanied by 1 or 2 ternate leaves. Fl. small, white.—Marshes and ditches, especially near the sea. B. VI.—VIII. *Celery.*

7. Petroselinum *Hoffm.*

†1. *P. sativum* (Hoffm.); *l. tripinnate* shining, leaflets of the lower l. ovate-cuneate trifid and toothed, of the upper l. ternate and entire.—*E. B. S.* 2793.—Partial involucres filiform. L. greenish.—Rocks and old walls. B. VI.—VIII. *Parsley.*

2. *P. segetum* (Koch); lower *l. pinnate*: leaflets nearly sessile ovate lobed and serrate, upper l. entire or trifid.—*E. B.* 228.—Umbels very irregular. General involucre of 1—2 leaves. Fl. whitish. St. erect, roundish, nearly leafless above, 1—1½ foot high.—Damp fields on a calcareous soil. B. VIII. IX.

8. Trinia *Hoffm.*

1. *T. vulgaris* (DC.); glabrous, involucres wanting or of 1 leaf; ridges of the fr. obtuse.—*E. B.* 1209.—L. tripinnate, glaucous-green; leaflets linear or filiform. Root crowned with the remnants of former leaves. St. branched, erect, 6—8 in. high. Plants usually dioecious.—Dry limestone hills, rare. P. V. VI. E.

9. Helosciadium *Koch.*

1. *H. nodiflorum* (Koch); st. procumbent at the base and rooting, l. pinnate, *leaflets* ovate or ovate-lanceolate unequally *obtusely serrate*, umbels opposite to the l. longer than their peduncles or nearly sessile.—*E. B.* 639.—St. 1—2 feet long.—Banks of ditches and brooks. P. VIII.

2. *H. repens* (Koch); st. prostrate creeping, l. pinnate, *leaflets roundish-ovate unequally and acutely inciso-serrate*, umbels shorter than the peduncles.—*E. B.* 1431.—Scarcely more than a variety of the preceding. St. quite prostrate.—Boggy meadows, rare. P. VII. VIII.

3. *H. inundatum* (Koch); st. creeping, l. pinnate, *leaflets of the lower l. divided into capillary segments*, of the upper l. wedge-shaped and trifid, umbels generally with 2 rays.—*E. B.* 227.—Usually wholly submersed except a few of the upper l. and the fl. which rise above the water. Partial umbels very small.—Ponds. P. VI. VII.

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10. Sison *Linn.*

1. *S. Amomum* (L.). The only species.—*E. B.* 954.—St. erect, panicled, 2—3 feet high. Lower l. pinnate: leaflets oblong lobed cut and serrate; upper l. divided into narrow segments. Partial umbels and fl. small.—In dampish places on a calcareous soil. B. VIII. E. S.

11. Ægopodium *Linn.*

1. *Æ. Podagraria* (L.). The only species.—*E. B.* 940.—St. 1—2 feet high, erect, furrowed. L. 2 or 3 times ternate; leaflets ovate-acuminate, unequal at the base, acutely serrate. Root creeping.—Damp places. P. VI. VII. *Gout Weed. Herb Gerarde.*

12. Carum *Linn.*

†1. *C. Carui* (L.); *partial involucre* 0, general 0 or of 1 leaf, l. bipinnate, leaflets cut into linear segments.—*E. B.* 1503.—St. 1—2 feet high. Root fusiform. Carp. aromatic.—Meadows and pastures. B. VI. *Caraway.*

2. *C. verticillatum* (Koch); *general and partial involucres of many leaves* small, l. pinnate, leaflets divided to the base into capillary spreading segments.—*E. B.* 395.—St. 1—1½ foot high. Root fascicled. *Segments of the leaflets* spreading so as to appear *whorled* and quite surrounding the petiole. L. nearly all radical.—Damp hilly pastures, rare. P. VIII.

13. Bunium *Linn.*

1. *B. flexuosum* (With.); general involucre of 1—3 leaves, partial more numerous, *fr. oval* narrowing upwards crowned with the *elongated stylopodium and erect styles*, interstices with 3 vittæ.—*E. B.* 988. *B. denudatum* DC.—Involucres sometimes altogether wanting. Root a solitary tuber. St. a foot or more high, very slender below, bearing a few l. with linear segments. Radical l. triternate with long footstalks tapering downwards.—Sandy and gravelly pastures. P. V. VI. *Pig-nut.*

2. *B. Bulbocastanum* (L.); *general and partial involucres of numerous leaves, fr. oblong* crowned with the *short stylopodium and reflexed styles*, interstices with single vittæ.—*E. B. S.* 2862. *Carum* Koch, DC.—Involucres always present. Root a tuber. St. about 2 feet high, slightly narrowed below. Lower l. bipinnate, with a triangular outline, rather numerous near the base of the stem, rarely 1 or 2 radical upon long footstalks tapering downwards.—Chalky fields in Cambridgeshire and Herts. *Rev. W. H. Coleman.* P. VI. VII. E.

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14. PIMPINELLA *Linn.*

1. *P. magna* (L.); l. pinnate, *leaflets all ovate serrate* somewhat cut the terminal one 3-lobed, *st. angularly striate.—E. B.* 408. —St. 1—2 feet high, leafy. Styles longer than the ovary, as long or longer than the oval fruit.—Under hedges. P. VII. VIII. E. I.

2. *P. Saxifraga* (L.); l. pinnate, leaflets of the lower l. roundish-ovate serrated somewhat cut, those *of the stem l. bipinnate in linear segments, st. terete.—E. B.* 407.—St. 1—2 feet high, naked above. Styles shorter than the ovary. L. sometimes all pinnatifid.—Dry pastures. P. VII.—IX.

15. SIUM *Linn.*

* *Stylopodium depressed. Carp. with the lateral ridges marginal. Interstices with* 3 *superficially placed vittæ. Albumen very convex, flattened on the inner side.* SIUM Koch.

1. *S. latifolium* (L.); root stoloniferous fibrous, l. pinnate, *leaflets* oblong-lanceolate *equally serrate* pointed, involucres of many lanceolate leaves.—*E. B.* 204.—Ridges of the carp. obtuse rounded. St. 3—5 feet high, angular, furrowed. Leaflets very large, distant, 4½—6½ pairs on a leaf.—Ditches and rivers, rare. P. VII. VIII.

** *Stylopodium shortly conical. Carp. with the lateral ridges not marginal. Interstices with* 3 *or more deeply seated vittæ. Albumen terete.* BERULA Koch.

2. *S. angustifolium* (L.); root stoloniferous, l. pinnate, *leaflets unequally lobed and cut* ovate, of the stem l. lanceolate, involucres of many lanceolate entire or cut leaves.—*E. B.* 139.—Ridges of the carpels but slightly prominent. St. 1—3 feet high, round, striated. Leaflets often very deeply cut and lobed.—Ditches. P. VIII.

16. BUPLEURUM *Linn.*

* *Fruit granulated.*

1. *B. tenuissimum* (L.); st. branched, l. linear acute, umbels lateral and terminal minute, partial umbels of 3—5 flowers usually overtopped by their involucres, carp. granulated between the 5 ridges.—*E. B.* 478.—St. very slender, wiry, 6—12 in. long.—Muddy salt marshes. A. VIII. IX. E.

** *Fruit not granulated.*

2. *B. aristatum* (Bartl.); st. branched, l. linear-lanceolate acuminate 3-nerved, l. of the partial involucres elliptic-lanceolate cuspidate somewhat awned with branching nerves, pedicels short equal.—*B. Odontites* Sm. *E. B.* 2468. not *Linn.* See *Prim. Fl. Sarn.* 43.—St. 1—6 in. high.—Torquay, Devon. Channel Islands. A. VII. E.

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3. *B. falcatum* (L.); st. branched, l. 5—7-nerved, *lower l. elliptical-oblong* on long stalks, *upper l. linear-lanceolate* acute sessile, partial involucre of 5 lanceolate pointed l. as long as the flowers.—*E. B. S.* 2763.—Pedicels as long as the fruit. St. 1—4 feet high.—Near Ongar, Essex. P. VIII. E.

4. *B. rotundifolium* (L.); st. branched above, *l. oval perfoliate*, fr. with the interstices striate.—*E. B.* 99.—General involucre 0. Partial involucre connivent.—Corn-fields on a calcareous soil. A. VII. *Thorow-wax. Hare's ear.* E.

Tribe IV. *Seselineæ.*

17. ŒNANTHE *Linn.*

1. *Œ. fistulosa* (L.); root tuberous stoloniferous, *st. and petioles fistulose*, root l. 2—3-pinnate with 3-fid leaflets, *stem l.* simply pinnate *shorter than their petioles*: leaflets linear, fr. angular turbinate.—*E. B.* 363.—St. 1—3 feet high, remarkably fistulose. Stem l. distant, with very long stalks. Scions with simply pinnate leaves. Umbels small, globose in fruit; general involucre 0. Carpels tipped with the long slightly diverging rigid styles.—By ponds and ditches. P. VII.—IX. E. I.

2. *Œ. Lachenalii* (Gmel.); *root of slender elongate-clavate tapering* fleshy *tubercles, root* l. bipinnate: *leaflets oblong entire or wedgeshaped and* bluntly 2—3-lobed, lower *stem* l. 2—3-pinnate upper simply pinnate: *leaflets linear* acute, radiant pet. divided to the middle, fruit oblong tapering below.—*Œ. pimpinelloides* Sm. *E. B.* 347.—St. 1—3 feet high, slightly branched. General involucre of many leaves, sometimes wanting; partial of many leaves, shorter than the flowers. Fr. crowned with the rigid nearly erect styles. Root leaves very evanescent.—The true *Œ. pimpinelloides* (L.) is stated by him to have the leaflets of its radical l. "incisis ovatis,....cuneatis fissis,....divisis; Hab. Monspelii." Specimens from the south of France (Toulouse) named *Œ. pimpinelloides* have root l. with wedgeshaped very deeply cut leaflets with acute lobes and cylindrical fruit with a peculiar callous truncate base. The English plant agrees well with specimens of *Œ. Lachenalii* from Strasbourg.—Salt marshes, rarely (another species?) near fresh water. P. VII.—IX.

3. *Œ. peucedanifolia* (Poll.); "*root of elliptical-oblong* fleshy *sessile knobs*," radical l. bipinnate, stem l. pinnate, *leaflets all linear acute*, fr. "oblong narrowed below."—*E. B.* 348.—St. 2—3 feet high, slightly branched. I have not seen the root or ripe fruit of British specimens. General involucre 0, partial of many leaves shorter than the flowers. Distinguished from the preceding by its uniform leaflets, sessile tubers and want of a general involucre.—Many authors refer the English plant to *Œ. silaifolia* (Bieb.) of which Koch says "fructibus cylindricis basi callo cinctis," as is the case in the true *Œ. pimpinelloides*,

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but Bertoloni observes of the same plant "diacheniis basi magis angustatis quam apice." My foreign specimen of *Œ. silaifolia* agrees well with the English (Cambridge) plant but wants the fruit.—In freshwater marshes. P. VI. E.

4. *Œ. crocata* (L.); "root of large fusiform tubers," radical l. 2—3-pinnate, stem l. pinnatifid, *leaflets stalked roundish or oblong-wedgeshaped* variously cut those of the upper l. narrower, *fr. cylindrical* oblong striated longer than its pedicel.—*E. B.* 2313.—St. 3—5 feet high, much branched. L. large, leaflets broad. Involucres various in number and shape.—*Œ. apiifolia* has narrower and more divided upper l. according to a Corsican specimen.—Wet places. P. VII.

5. *Œ. Phellandrium* (L.); *rhizoma jointed with numerous whorled fibres at the joints*, l. tripinnate, leaflets ovate pinnatifid cut spreading, umbels lateral opposite to the leaves, fr. *ovate-oblong*.—*E. B.* 684.—St. 2—3 feet high, very thick and procumbent below, stoloniferous. Segments of the l. numerous, fine, acute, pale green; of the submersed l. multifid, with capillary diverging segments, dark green. Probably, as suggested by Koch, the flowering root dies each year, but the plant is continued by the offsets.—*β. fluviatilis*; *submersed* l. multifid: *leaflets wedge-shaped elongate diaphanous with numerous parallel* nerves very deeply incised at the end and divided into fingerlike acute broadly linear parallel segments, leaflets of the upper l. broader than in *var. α.* and fewer in number, fr. narrowing above and below the middle (?), whole plant dark livid green. Probably a distinct species.—In the water of ditches and ponds. *β.* Swift streams, Hertfordshire. *Rev. W. H. Coleman.* B.? *β.* P.? VII.—IX.

18. ÆTHUSA *Linn.*

1. *Æ. Cynapium* (L.); partial involucre of 3 leaves longer than their umbel, l. all doubly pinnate: leaflets lanceolate decurrent pinnatifid.—*E. B.* 1192.—St. about a foot high. L. dark green, lurid, stinking. General involucre 0; partial one long, narrow, pendulous. Herb poisonous. The vittæ appear to me to converge below until they meet without descending to the base of the carpel.—*β. pygmæa* (Koch); umbels mostly lateral nearly sessile, partial involucres short, lower l. 3-fid with obtuse segments cut at the end, upper ones ternate. St. 4—6 in. high. *Æ. segetalis* Boenningh.—Gardens and cultivated land. *β.* near Chichester. *Mr. W. W. Newbould.* A. VII. VIII. *Fools' Parsley.*

19. FŒNICULUM *Hoffm.*

1. *F. officinale* (All.); st. terete below solid, l. decomposite: segments capillary elongate, umbels of many rays concave.—*E. B.* 1208?—Involucres 0. St. 3—4 feet high, completely filled with pith, branching. Umbels large. Fl. yellow. Whole herb

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aromatic.—Hooker says "segments of the l. awlshaped" and "st. fistulose," which I do not find to be the case in the wild (Chudleigh, Devon,) plant. The fig. and description in *E. B.* also appear to be erroneous in these points. Is not the cultivated plant often a different species?—Rocks and walls, particularly near the sea. P. VII. VIII. *Fennel.* E. I.

20. Libanotis *Crantz.*

1. *L. montana* (Crantz); l. doubly pinnate cut: segments lanceolate mucronate, the lowermost leaflets crossing, general involucre of many leaves, fr. hairy.—*Athamanta* (Sm.) *E. B.* 138.—St. 1—3 feet high, covered at the base with the fibrous remains of decayed petioles. Umbels terminal, convex, with numerous downy rays.—Bertoloni (Fl. Ital. iii. 450) ascribes 2 vittæ to each interstice and 4 to the commissure. I only find 1 in the former case and 2 in the latter. This genus is very near in structure but differs in habit from *Seseli.*—Chalk hills of Cambridgeshire and Sussex. P. VII. VIII. E.

21. Ligusticum *Linn.*

1. *L. scoticum* (L.); l. twice ternate, leaflets ovate somewhat rhomboidal dentate-serrate opaque, involucre of 5—7 linear-lanceolate leaves, cal. 5-toothed.—*E. B.* 1207.—St. herbaceous, nearly simple, striated, tinged with red, 1—1½ foot high. Leaflets large, lobed and cut. Interstices with 3, commissure with 6 vittæ.—Rocks on the sea-coast of Scotland and Northumberland. P. VII. *Scottish Lovage.* E. S.

22. Silaus *Besser.*

1. *S. pratensis* (Bess.); st. angular, radical l. 3—4 times pinnate, leaflets lanceolate entire or bifid, terminal tripartite, involucre of 1—2 leaves.—*E. B.* 2142.—St. 1—2 feet high. L. mostly radical, stem l. decreasing upwards. Fl. pale yellow.—Damp meadows and pastures. P. VI.—IX.

23. Meum *Tourn.*

1. *M. athamanticum* (Jacq.); l. bipinnate, leaflets multipartite, segments threadshaped acute.—*E. B.* 2249.—St. 1—2 feet high, round, clothed at the base with the fibrous remains of the decayed petioles. Fl. numerous, whitish yellow. General involucre of 2 or 3 leaves, partial more numerous. Highly aromatic.—Dry mountainous pastures. P. VI. VII. *Bald-money.* E. S.

24. Crithmum *Linn.*

1. *C. maritimum* (L.). The only species.—*E. B.* 819.—St. 6—12 in. long. L. fleshy, 2—3-pinnate: leaflets lanceolate, narrowed at both ends, few. Involucre of many lanceolate acute leaves. Fl. whitish.—On rocky sea-coasts. P. VIII. *Samphire.*

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Tribe V. *Angeliceæ.*

25. ANGELICA *Linn.*

1. *A. sylvestris* (L.); leaflets equal ovate-lanceolate or ovate inciso-serrate not decurrent, lateral ones rather unequal at the base.—*E. B.* 1128.—St. 2—3 feet high, slightly downy above, purplish. Fl. pinkish-white. Involucre of about 3 leaves, deciduous. Leaflets often subcordate at the base. In wet places. P. VII. VIII.

26. ARCHANGELICA *Hoffm.*

[1. *A. officinalis* (Hoffm.); leaflets ovate-lanceolate all sessile partly decurrent, terminal one trifid.—*E. B.* 2561.—St. 3—5 feet high. Foliage, stalks and even fl. bright green. L. 2—3 feet wide. Petioles much dilated at the base.—A very doubtful native. Watery places. P. VII.—IX.] E. S.

Tribe VI. *Pucedaneæ.*

27. PUCEDANUM *Linn.*

1. *P. officinale* (L.); *l. 5 times tripartite: leaflets linear* acute *flaccid,* "general involucre 3-leaved deciduous, pedicels much longer than the fruit."—*E. B.* 1767.—Leaflets very long, narrow. Fl. yellow. St. terete, striated. "Vittæ of the commissure superficial."—Salt marshes, very rare. P. VII.—IX. E.

2. *P. palustre* (Moench); *l. 3-pinnate, leaflets pinnatifid* with linear-lanceolate acuminate segments, *general involucre of many persistent* lanceolate deflexed *leaves,* st. furrowed.—*E. B.* 229.—St. erect, 3—5 feet high. Fl. white. "Vittæ of the commissure deeply seated."—Marshy and fenny places, rare. P. VII. VIII. E.

† *P. Ostruthium* (Koch); *l. biternate, leaflets broadly ovate lobed cut and serrated,* sheaths very large, *general involucre* 0, cal.-segments obsolete.—*E. B.* 1380.—St. 1—2 feet high. Fl. white.—Moist meadows in Scotland. P. VI. *Masterwort.*—S.

28. PASTINACA *Linn.*

1. *P. sativa* (L.); st. angular furrowed, l. pinnate downy beneath, leaflets ovate-oblong crenate-serrate often with a lateral lobe at the base, involucres 0, fr. oval.—*E. B.* 556.—St. 2—3 feet high. Fl. yellow. L. generally shining above, sometimes slightly downy. In a Guernsey specimen the lower leaves have cordate ovate deeply cut and acutely serrate leaflets, and the stem l. lanceolate lobed and acute leaflets with the lobes lanceolate and serrated.—Hedge-banks on a calcareous soil. B. VII. *Parsnep.*

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29. Heracleum *Linn.*

1. *H. Sphondylium* (L.); l. pinnate, leaflets lobed or pinnatifid cut and serrated, fr. at length glabrous.—*E. B.* 939.—St. 4 feet high. Lower l. very large. Umbels large, flattish. Fl. white or reddish, outer fl. radiant.—*β. angustifolium*; leaflets deeply pinnatifid: lobes lanceolate, lower ones elongated and spreading.—Hedge-banks. B. VII. *Cow Parsnep. Hog-weed.*

30. Tordylium *Linn.*

1. *T. maximum* (L.); outermost pet. radiant with 2 *equal lobes, partial involucres linear* shorter than the umbel, fr. hispid the thickened margin slightly crenate.—*E. B.* 1173.—St. 2—4 feet high. Fl. reddish.—Waste ground, very rare. A. VII. E.

[2. *T. officinale* (L.); two outermost pet. radiant each with 2 *very unequal lobes, partial involucres* lanceolate about as long as the umbel, fr. rough with the thickened margin beautifully crenate.—*E. B.* 2440.—Near London. *Ray.* A. VII.] E.?

Tribe VII. *Daucineæ.*

31. Daucus *Linn.*

1. *D. Carota* (L.); *bristles of the fr.* slender *subulate distinct about equalling the breadth of the fruit,* l. tripinnate, leaflets of the upper l. linear-lanceolate acute, of the lower l. broader, of the general involucre pinnatifid with linear segments, of the partial one linear entire or trifid.—*E. B.* 1174.—St. 2—3 feet high, hispid. Involucres variable in length, the general ones with white membranous wings to their petioles, the partial with similar wings in their lower half.—A Cornish plant with broader less acute leaflets and broader membranous wings to the partial involucres is perhaps *D. Gingidium* and probably often mistaken for the following.—Road-sides and hedge-banks. B. VII. VIII. *Carrot.*

2. *D. maritimus* (With.); *bristles of the fr. flattened dilated* and confluent below *shorter than the breadth of the fruit,* lower l. tripinnate with ovate acute inciso-dentate leaflets, leaflets of the general involucre linear pinnatifid, of the partial lanceolate simple or trifid.—*E. B.* 2560.—Distinguished from the last by the peculiar comblike secondary ridges of its fruit with short teeth, which although differing considerably in length are always much shorter than the diameter of the fruit. St. about 18 in. high densely hairy below. Leaflets broad, shining above, somewhat fleshy. Partial involucres with a white membranous ciliated margin.—Sea-coasts, rare? B. VII. VIII.

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Suborder II. *Campylospermæ*. Tribe VIII. *Caucalineæ*.

32. CAUCALIS *Hoffm.*

1. *C. daucoides* (L.); l. bipinnate, leaflets pinnatifid with linear-acute segments, general involucre 0, partial umbels of few fl. with involucres of 3—5 leaves, secondary ridges of the fr. each with one row of glabrous hooked prickles.—*E. B.* 197.—St. 6—12 in. high, furrowed, hairy at the joints. General umbels 3-cleft; partial bearing about 3 large oblong very prickly fruits. Fl. small, reddish.—Corn-fields on a chalky soil. A. VI. E.

†2. *C. latifolia* (L.); *l. pinnate, leaflets lanceolate* decurrent *coarsely serrate*, involucres oblong membranous, secondary ridges of the fr. with retrorsely scabrous prickles.—*E. B.* 198. *Turgenia* Koch.—St. 1—2 feet high, scabrous. General umbels about 3-cleft; partial bearing about 5 large oblong very prickly fruits. Fl. large, pink.—Corn-fields, mostly on a chalky soil, very rare. A. VII. E.

33. TORILIS *Adans.*

1. *T. Anthriscus* (Gaert.); l. bipinnate, leaflets ovate-oblong inciso-serrate, umbels stalked terminal, *general involucre of many leaves*, fr. with subulate incurved *not hooked* scabrous *prickles*.—*E. B.* 987.—St. erect, 1—3 feet high. Umbels on long stalks. Fr. densely prickly. Fl. small, white or reddish.—Hedges and banks. A. VII. VIII.

2. *T. infesta* (Spr.); l. bipinnate, leaflets ovate-lanceolate inciso-serrate, *umbels stalked terminal, general involucre of one leaf or* 0, *fr. with* spreading *hooked* retrorsely scabrous *prickles*.—*E. B.* 1314.—St. erect, more branched than in the last, 6—18 in. high. Umbels on long stalks. Fr. densely prickly, the primary ridges with adpressed prickles. Fl. small, reddish. Styles scarcely twice as long as the stylopode.—Fields and waste places. A. VII. VIII.

3. *T. nodosa* (Gaert.); lower l. bipinnate, upper pinnate, leaflets deeply narrowly and uniformly pinnated, *umbels nearly sessile* dense *lateral, outer carpels with* hooked *bristles inner often warted*.—*E. B.* 199.—St. diffuse. Umbels very small, nearly globular.—Banks and dry places. A. V.—VII.

Tribe IX. *Scandicineæ*.

34. SCANDIX *Linn.*

1. *S. Pecten-veneris* (L.); fr. roughish: beak 3 times as long as the carpels dorsally compressed glabrous with bristly edges, leaflets of partial involucres entire or bifid longer than the pedicels.—*E. B.* 1397.—St. often a foot high. L. light green, triply

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pinnate; segments short, linear. Umbels 1—2 together, small. Fl. often slightly radiant. Fr. remarkable for its very long (1—2 in.) beak. Styles always straight. Stylopode purple.—Hooker says "partial involucres pinnatifid or bipinnatifid." Is his plant the same as ours?—Cultivated land. A. VI.—IX. *Shepherd's Needle.*

35. ANTHRISCUS *Hoffm.*

1. *A. sylvestris* (Hoffm.); st. hairy below glabrous above slightly swollen below the joints, *umbels terminal stalked,* l. bipinnate, leaflets pinnatifid, *fr. linear glabrous with a short beak.* —*E. B.* 752.—St. 3 feet high, erect, leafy, furrowed, branched. Partial involucre of several ovate-lanceolate ciliated leaflets. Umbels at first drooping.—Hedges and banks. P. IV.—VI. *Wild Chervil.*

†2. *A. Cerefolium* (Hoffm.); st. hairy above the joints only, *umbels lateral sessile,* l. tripinnate, leaflets ovate pinnatifid, *fr. linear smooth about twice as long as its beak.*—*E. B.* 1268.—St. 1—3 feet high, slender, striated, much branched. Partial involucre of 3 unilateral linear-lanceolate leaflets. Peduncles downy. —Waste ground. Probably an escape from cultivation. A. V. VI. *Garden Chervil.*

3. *A. vulgaris* (Pers.); st. glabrous, *umbels lateral stalked,* l. tripinnate, leaflets pinnatifid, *fr. ovate hispid* about twice as long as its glabrous beak.—*E. B.* 818.—St. erect, 2 feet high, branched. L. slightly hairy. Umbels on rather short stalks. Partial involucres of few ciliated leaflets.—Waste places. A. V. VI.

36. CHÆROPHYLLUM *Linn.*

1. *C. temulum* (L.); st. swelling beneath the joints rough, l. bipinnate, *leaflets* ovate-oblong pinnatifid *with obtuse* mucronate *segments,* pet. glabrous, *styles equalling the stylopode.*—*E. B.* 1521. —St. 3—4 feet high, round, spotted, scabrous below, hairy near the summit. Umbels at first nodding.—Hedge-banks. P. VI. VII.

*2. *C. aureum* (L.); st. somewhat thickened below the joints, l. tripinnate, *leaflets attenuated very acute* inciso-pinnatifid, pet. glabrous, *styles longer than the stylopode.*—*E. B.* 2103.—St. 3 feet high, angular, striated. Partial involucres with ovate-lanceolate much attenuated leaflets.—Borders of fields near Montrose. A very doubtful native. P. VI. S. ?

†3. *C. aromaticum* (L.); st. slightly thickened below the joints, l. subternately bipinnate, *leaflets undivided broad oblong* acuminate sharply serrate hairy beneath, styles longer than the stylopode.— —*E. B. S.* 2636.—St. 2—3 feet high, furrowed, angular, rough with bristly hairs and spotted below.—Near Guthrie between Forfar and Arbroath. *Mr. G. Don.* P. VI. S.

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37. Myrrhis *Scop.*

1. *M. odorata* (Scop.); l. downy beneath, leaflets of the partial involucres lanceolate-acuminate.—*E. B.* 697.—St. 2—3 feet high, round, leafy, hollow. L. very large, tripinnate. Leaflets ovate-lanceolate, pinnatifid. Umbels terminal. Fl. numerous, white. Fr. large, nearly an inch long, dark brown. Whole plant highly aromatic.—Pastures in hilly districts. P. V. VI. *Sweet Cicely.*

Tribe X. *Smyrneæ.*

38. Echinophora *Linn.*

1. *E. spinosa* (L.); l. pinnate, leaflets pinnatifid with spinous awlshaped entire segments.—*E. B.* 2413.—Sandy sea-shores, probably now lost. Lancashire and Kent. Weymouth? *Dr. Salter.* P. VII. E.

39. Conium *Linn.*

1. *C. maculatum* (L.); leaflets of the partial involucres unilateral ovate-lanceolate with an attenuated point shorter than the umbels.—*E. B.* 1191.—St. 3—5 feet high, erect, round, hollow, glaucous, spotted with purple, branched. L. tripinnate; leaflets lanceolate, pinnatifid with acute cut segments. Readily distinguished by its fœtid smell, spotted stem, unilateral partial involucres and wavy crenate ridges of the fruit. Highly poisonous.—Hedge-banks and waste places. B. VI. VII. *Hemlock.*

40. Physospermum *Cusson.*

1. *P. cornubiense* (DC.); radical l. triternate, leaflets wedge-shaped cut or deeply 3-lobed with acute segments, stem l. ternate lanceolate entire.—*E. B.* 683.—St. 1—3 feet high, erect, round, striated, minutely scabrous, bearing a few small ternate leaves with linear lanceolate segments, the uppermost represented by a barren lanceolate acute sheath. Umbels terminal. Carp. longer than broad; the coat loose. Seed free.—Hooker refers *P. aquilegifolium* (Koch) to this; on the contrary, Bertoloni, with Hooker's observations before him, states that they are quite different.—Devon and Cornwall, rare. P. VII. VIII. E.

41. Smyrnium *Linn.*

1. *S. Olusatrum* (L.); st. terete, stem l. ternate stalked serrate.—*E. B.* 230.—St. 3—4 feet high, stout, branched, leafy, furrowed. Radical l. very large, all with large membranous sheaths and large ovate shining cut and serrated leaflets. Fl. greenish-yellow in dense rounded umbels. Fr. nearly black, aromatic.—Waste ground and near ruins. B.? V. VI. *Alexanders.*

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Suborder III. *Cœlospermæ*. Tribe XI. *Coriandreæ*.

42. CORIANDRUM *Linn.*

*1. *C. sativum* (L.). The only species.—*E. B.* 67.—St. 12—18 in. high, leafy, round, striated. L. bipinnate, cut; upper ones more divided into linear segments. Fl. white.—Fields and waste places, an escape from cultivation. A. VI. *Coriander*. E. S.

Order XXXIX. ARALIACEÆ.

Cal. 4—5 toothed, adnate to the ovary. Pet. 5—16 rarely wanting, æstivation valvate. Stam. as many as the pet. and alternate with them or twice as many, inserted below the margin of an epigynous disk. Ovary 2- or more celled. Styles as many as the cells. Fr. succulent or dry, of several cells each with 1 pendulous seed, endocarp crustaceous. Albumen fleshy. Embryo minute (not so in our *Hedera*).—L. alternate without stipules.

1. ADOXA. Cal. half inferior, limb trifid. Cor. superior, 4—5-cleft, rotate with a short tube contracted at the throat. Stam. 8—10, in pairs alternate with the petals, anthers 1-celled. Berry 4—5-celled; cells 1-seeded.—This ought perhaps to be referred to *Caprifoliaceæ*.

2. HEDERA. Cal. superior, limb of 5 teeth. Pet. 5—10, not adhering at the apex. Stam. 5—10. Styles 5—10, connivent, or combined into one. Berry 5-celled and 5-seeded, crowned with the calyx.—Closely allied by its embryo to *Corneæ*.

1. ADOXA *Linn.*

1. *A. Moschatellina* (L.). The only species.—*E. B.* 453.—Rhizoma white, fleshy, toothed, stoloniferous. St. solitary, erect, simple, 3—4 in. high, with 2 opposite leaves, and a head of 4 whorled and 1 terminal flowers. Stam. often more or less combined, showing their number to be normally 4. Fl. with a musky smell. Terminal fl. divided in fives, the others in fours.—Woods and shady hedge-banks. P. IV. V.

2. HEDERA *Linn.*

1. *H. Helix* (L.); l. coriaceous ovate or cordate and 5-lobed: lobes angular, umbel simple downy erect.—*E. B.* 1267.—Climbing by means of rootlike fibres. L. of the flowering branches ovate-oblong, acute, entire. Berries black.—Rocks, old walls, hedges. Sh. X. XI. *Ivy*.

Order XL. CORNEÆ.

Cal. 4-lobed. Pet. 4, oblong, broad at the base, inserted at

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the top of the calyx-tube, æstivation valvate. Stam. 4. Ovary 2-celled. Style filiform. Fruit a drupe, crowned with the remains of the calyx; endocarp thick and bony. Albumen fleshy. Seeds pendulous, solitary.—Leaves opposite.

1. CORNUS. Calyx-limb superior, of 4 teeth. Pet. 4. Stam. 4. Style 1. Drupe with a 2-celled and 2-seeded nut.

1. CORNUS *Linn.*

1. *C. sanguinea* (L.); *arborescent*, branches straight, l. ovate cuspidate green on both sides, cymes flat without an involucre. —*E. B.* 249. *St.* 52. 3.—Shrub 5—6 feet high. Old bark reddish. Fl. numerous, white, in terminal cymes. Fr. dark purple. L. mostly opposite, strongly nerved, acutely cuspidate, rounded below, downy beneath.—Hedges and thickets. Sh. VI. *Dogwood.*

2. *C. suecica* (L.); *herbaceous*, l. all opposite sessile ovate: nerves separate almost to the base, fl. umbellate shorter than the 4-*leaved petaloid involucre.*—*E. B.* 310. *St.* 52. 1.—Flowering shoots about 6 in. high, annual, springing from the procumbent or subterranean creeping woody leafless stems. Fl. dark purple with yellow stamens, in a small solitary terminal umbel with an involucre of 4 ovate yellow leaves tipped with purple. Fr. red. —Moist alpine pastures. P. VII. E. S.

Subclass III. COROLLIFLORÆ.

Pet. united bearing the stamens.

Order XLI. LORANTHACEÆ.

Cal. adnate to the ovary, with 2 bracts at its base, limb entire or lobed. Cor. of 4—8 more or less united petals. Stam. as many as and opposite to the petals and the filaments more or less combined with them, anth. sometimes adnate to the petals. Ovary 1, 1-celled with 1 erect ovule. Style filiform or 0. Stigma capitate. Fr. succulent. Albumen fleshy.—Parasitical plants with entire, mostly opposite leaves.

1. VISCUM. Dicecious. Male: Cal. 0. Pet. 4, ovate, fleshy, united at the base. Anth. adnate to the petals, many-celled. Fem.: Cal. an obscure entire superior margin. Pet. 4, erect, somewhat triangular, minute. Stigma sessile, obtuse. Berry 1-seeded, crowned with the calyx.

1. VISCUM *Linn.*

1. *V. album* (L.); st. repeatedly dichotomously branched, branches terete, l. ovate-lanceolate obtuse, fl. in the forks of the

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stem sessile clustered.—*E. B.* 1470. *St.* 8.—Evergreen, parasitical, yellow, succulent. Male fl. about 3 together, female about 5, yellowish. Berries white, pellucid, globular, viscid.—For an excellent description of this plant see *Leight. Shrop.* 491. See also *Loudon's Mag. Nat. Hist.* vi. 500, and *Ann. Nat. Hist.* vii. 185.—Parasitical on various trees. P. III.—IV. *Mistletoe.* E.

Order XLII. CAPRIFOLIACEÆ.

Cal. adnate with the ovary, usually with bracts at the base, limb 4—5-lobed. Cor. regular or irregular, 4—5-cleft. Stam. free, on the corolla, 4—5, alternate with the lobes. Ovary 3—5-celled, cells with one or more pendulous ovules. Stigmas 1—3. Fruit indehiscent, 1- or more celled, usually a berry. Albumen fleshy.—L. opposite.

1. SAMBUCUS. Cal.-limb 5-cleft. *Cor. rotate,* 5-lobed, at length reflexed. Stam. 5. Stigmas 3, sessile. Berry 3—4-seeded.

2. VIBURNUM. Cal.-limb 5-cleft. *Cor. campanulate or funnelshaped,* 5-lobed. Stam. 5. Stigmas 3, sessile. Berry 1-seeded.

3. LONICERA. Cal.-limb small, 5-cleft. *Cor. tubular* or funnelshaped, usually saccate at the base, limb 5-fid or irregular. Stam. 5. *Style filiform. Stigma capitate.* Berry 1—3-celled, few-seeded.

4. LINNÆA. *Cal.-limb* 5-cleft, *with lanceolate subulate equal deciduous segments.* Cor. between turbinate and campanulate, 5-lobed. *Stam.* 4, rarely 5, 2 longer. Style filiform, stigma capitate. Fr. a dry 3-celled berry, 2 cells barren, 1 single-seeded.—Two large and 2 minute bracts at the base of the fruit.

1. SAMBUCUS *Linn.*

1. *S. Ebulus* (L.); *herbaceous,* st. furrowed, *stip. leafy* ovate serrate, l. pinnate, leaflets lanceolate serrate, cyme with 3 principal branches.—*E. B.* 475.—St. 2—4 feet high. Cymes terminal. Fl. white, reddish externally, anth. purple. Berry reddish black.—Hedge-banks. P. VIII. *Dwarf Elder. Danewort.*

2. *S. nigra* (L.); *arborescent, stip. obsolete,* l. pinnate, leaflets ovate cuspidate serrate, cymes with 5 principal branches.—*E. B.* 476.—A small tree. Cymes large, terminal. Fl. cream-coloured. Berry black, rarely green or white.—*β. laciniata*; l. laciniated.—Woods and hedges. *β.* near Ayr. *Hooker.* T. VI. *Elder.*

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2. VIBURNUM *Linn.*

1. *V. Lantana* (L.); *l. elliptical* with a cordate base *finely serrate* downy beneath, pubescence stellate.—*E. B.* 331.—A small tree with round mealy branches. Young shoots, petioles, and under sides of the l. densely, upper side more sparingly, covered with stellate down. Cymes terminal. Fl. white, not radiant. Berry black.—Hedges and thickets on a calcareous soil. T. V. *Mealy Guelder-rose. Wayfaring tree.* E. S.

2. *V. Opulus* (L.); *l.* 3—5-*lobed*: lobes acuminate and dentate, petioles glandular.—*E. B.* 332. *St.* 27. 6.—Branches glabrous, tetragonal when young. L. slightly downy beneath. Cymes large, with linear bracts; fl. white, inner ones fertile, outer barren and radiant. Berries red.—Hedges and thickets. T. VI. VII. *Common Guelder-rose.*

3. LONICERA *Linn.*

† 1. *L. Caprifolium* (L.); *fl.* ringent whorled terminal *sessile*, l. deciduous glabrous on both sides obtuse, *upper l. connate-perfoliate*, style glabrous.—*E. B.* 799.—St. twining. Fl. white or purplish. Berries orange. The 2 or 3 upper pairs of leaves connate, the rest distinct.—Woods and thickets. Sh. V. VI. E. S.

2. *L. Periclymenum* (L.); fl. ringent capitate terminal, *heads stalked, l. all distinct* deciduous oval, st. twining.—*E. B.* 800.—Fl. pale yellow, externally red. Berries red. L. sometimes downy beneath, rarely lobed.—Woods and hedges. Sh. VI.—IX. *Honeysuckle. Woodbine.*

3. *L. Xylosteum* (L.); *peduncles* 2-*flowered* woolly as long as the flowers, calyx-limb deciduous, berries slightly connected at the base, l. oval downy, st. erect.—*E. B.* 916.—Fl. pale yellow. L., bracts, cal., cor. externally, filaments, and style downy. Berries scarlet, nearly distinct.—Thickets, very rare. Truly wild in Sussex. Sh. V. E. S.?

4. LINNÆA *Gronov.*

1. *L. borealis* (Gron.). The only species.—*E. B.* 433.—St. trailing and creeping. L. opposite, broadly ovate, stalked, dark green above, paler beneath. Peduncles long, erect, 2-flowered, from short lateral branches with 2—4 leaves. Fl. pendulous, flesh-coloured, purple within.—Woods, chiefly of fir, in the north. P. VII. E. S.

Order XLIII. RUBIACEÆ.

Cal. superior, 4—5—6-lobed or obsolete. Cor. regular, 4—5—6-lobed. Stam. 4—5, alternate with the lobes of the

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corolla. Ovary 1, 2-celled, with solitary erect ovules. Style 1, often bifid. Stigmas 2. Fr. a didymous indehiscent pericarp. Embryo straight in horny albumen.

1. SHERARDIA. Cor. funnelshaped. Fr. crowned with the 6-toothed calyx, dry.

2. ASPERULA. Cor. funnelshaped. Fr. dry, not crowned with the limb of the calyx.

3. GALIUM. Cor. rotate. Fr. dry, not crowned with the calyx.

4. RUBIA. Cor. rotate or campanulate. Fr. succulent, 2-lobed.

1. SHERARDIA *Linn.*

1. *S. arvensis* (L.). The only species.—*E. B.* 891.—St. mostly decumbent, branched, square, leafy. L. 6 in a whorl, obovate-lanceolate, acute. Fl. blue, in a small sessile terminal umbel. Cal. of 4 segments, 2 of them bifid.—Cultivated land on a gravelly soil. A. V.—VII.

2. ASPERULA *Linn.*

[1. *A. arvensis* (L.); *l.* 6—10 *in a whorl* linear-lanceolate obtuse, fl. aggregate terminal surrounded by long ciliated bracts, *fr. glabrous.*—*E. B. S.* 2792.—Closely resembling *Sherardia arvensis.* St. ascending, square. Lowermost l. opposite or 4 together, roundish-obovate. St. and margins of the l. rough. Fl. bright blue.—Occasionally introduced with seed. Devonport. A. VI.] E.

2. *A. cynanchica* (L.); *l.* 4 *in a whorl* linear with scabrous margins, uppermost l. very unequal, fl. corymbose, bracts lanceolate mucronate, cor. scabrous, "*fr. granular-scabrous.*"—*E. B.* 33.—Root fusiform producing many diffuse or ascending branched stems. Fl. generally lilac.—Dry banks in limestone districts. P. VI. VII. E. I.

3. *A. odorata* (L.); *l.* 6—8 *in a whorl* lanceolate, margins scabrous, fl. in stalked terminal corymbs, *fr. hispid.*—*E. B.* 755.—St. erect, about 6 in. high. Fl. white. L. broad. Whole plant fragrant.—Woods. P. V. VI. *Woodruff.*

3. GALIUM *Linn.*

1. *G. cruciatum* (With.); *l.* 4 *in a whorl* elliptic-oblong hairy, flowerstalks lateral corymbose bracteated, *terminal fl. fertile,* lateral mostly male, *fruitstalks deflexed,* fr. smooth.—*E. B.* 143.—St. simple above, 1—2 feet high, hairy. Fl. small, about 8 together in small axillary corymbs, yellow.—"*β. lævipes*; peduncles and pedicels glabrous."—Hedges and thickets. P. V. VI. *Crosswort.*

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2. *G. palustre* (L.); *l.* 4 *in a whorl* linear-oblong broader upwards obtuse, panicle diffuse, *fl. perfect, fruitstalks* straight *spreading at right angles*, fr. smooth.—*E. B.* 1857.—St. 1—4 feet high, weak, branched or simple. Lowest l. usually 6 in a whorl, the rest in fours, 2 often much smaller. Fl. small, white. St. and branches nearly smooth.—*β. Witheringii* (Hook.); angles of the stem and margins and under sides of the l. rough with deflexed bristles.—*E. B.* 2206. *G. Witheringii* Sm.—These varieties are scarcely distinguishable except in their extreme states.—Wet places by ditches and rivers. P. VII. VIII.

3. *G. erectum* (Huds.); *l. about* 8 *in a whorl lanceolate* mucronate the margins rough with prickles all pointing forwards, midrib slender, *branches of the panicle all ascending, fruitstalks divaricated*, fr. oval smooth, pet. taper-pointed.—*E. B.* 2067.—St. weak, glabrous or hairy, ascending. L. lanceolate, scarcely at all obovate; margins with 2 rows of prickles pointing forwards; midrib beneath rather slender, smooth.—*β. cinereum*; l. 6—8 in a whorl linear, fruitstalks..... *G. cinereum* (Sm.) *E. B. S.* 2783. seems to be only a narrow-leaved variety.—*G. lucidum* Bert., Koch, Reich., differs from this by the very broad midrib upon the under side of its leaves and the horizontally patent lower branches of its panicle, both of which characters are very conspicuous in foreign specimens. *G. cinereum* from Corsica has very glaucous slender l. and a few of the marginal prickles decurved, but in other respects agrees with *G. lucidum* and is very different from Smith's plant.—Hedges and pastures. P. VI. VII.

4. *G. aristatum* (L.); *l.* 6 *in a whorl* lanceolate bristle-pointed with minute marginal prickles pointing forwards, *branches of the panicle all* (?) *ascending*, fruitstalks ....., fr. smooth separating into 2 kidneyshaped carpels, pet. taper-pointed.—*E. B. S.* 2784.—St. a foot high, very smooth, branching. Midrib of the l. smooth.—I know nothing of this plant except from the figure and description.—Angusshire. *Mr. G. Don.* P. VII. VIII. S.

5. *G. Mollugo* (L.); *l. about* 8 *in a whorl lanceolate-obovate or obovate-oblong* cuspidate the margins rough with prickles pointing forwards, midrib slender, branches of the panicle many-flowered *lower ones spreading horizontally* or deflexed, fruitstalks divaricated, fr. glabrous, pet. taper-pointed.—*E. B.* 1673.—St. ascending, square, thickened at the joints, glabrous, or in *β. scabrum* (Sm.) as well as the l. hairy.—*γ. insubricum*; l. about 6 in a whorl obovate abruptly cuspidate, branches of the panicle few-flowered terminating in trichotomous umbels, floral l. large, bracts large usually solitary. *G. insubricum* Gaud., Koch, DC. &c. A distinct species?—Hedges and thickets. *γ.* Winander Mere. *Rev. C. A. Stevens.* P. VII. VIII.

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6. *G. verum* (L.); *l. about* 8 *in a whorl linear-setaceous with revolute margins* channeled above *downy beneath,* panicles numerous small densely flowered subterminal, fruitstalks patent, *fruit smooth,* pet. obtuse and apiculate.—*E. B.* 660.—St. erect, slightly branched, somewhat woody, with numerous whorls of narrow deflexed leaves. Fl. golden yellow, rarely green or straw-coloured, usually in numerous small dense panicles collected into a kind of terminal spike. St. and upper surface of the l. sometimes downy or scabrous. On loose sands the st. are much more branched and the fl. sometimes solitary, but agreeing in all other respects with this species.—Dry and sandy places. P. VII. VIII.

7. *G. saxatile* (L.); *l. about* 6 *in a whorl obovate* pointed, panicles corymbose small, flowerstalks and fruitstalks erecto-patent, *fr. granulated,* pet. acute.—*E. B.* 815.—St. numerous, procumbent, much branched. L. obovate and suddenly narrowed to a point, smooth, with a few marginal ascending prickles. —Heaths. P. VII. VIII.

8. *G. pusillum* (L.); *l. about* 8 *in a whorl linear-lanceolate* mucronate without marginal prickles, panicle few-flowered, *flowerstalks and fruitstalks erecto-patent,* fr. obsoletely granulated, pet. acute.—*E. B.* 74.—St. numerous, slender, square, branched, loosely spreading. L. often nearly glabrous or with *marginal hairs not prickles* spreading or deflexed *never ascending.* Lower part of the stem and leaves sometimes densely covered with patent hairs. Fr. very minutely granulated.—Limestone hills, rare. P. VII. VIII.

9. *G. uliginosum* (L.); *l.* 6—8 *in a whorl linear-lanceolate* bristle-pointed with *margins rough like the angles of the stem with prickles pointing backwards,* panicles small axillary few-flowered trichotomous the branches patent 3-fid, fruitstalks straight, fruit granulated.—*E. B.* 1972.—Stems slender, brittle, about a foot high, weak. L. usually 6 in a whorl, discoloured at the tip, and terminating in a transparent bristle. Branches of the small panicles erecto-patent. Fr. dark brown.—Wet places. P. VII. VIII.

10. *G. anglicum* (Huds.); *l. about* 6 *in a whorl linear-lanceolate* bristle-pointed the margins rough *with prickles pointing forwards, st.* rough *with decurved prickles,* panicles small axillary dichotomous: branches divaricated bifid, fr. granulated.—*E. B.* 384.—St. 6—8 in. high, spreading, slender, brittle. L. usually 6 in a whorl, the lowermost sometimes in fours. Branches of the small panicles often spreading nearly at right angles with their stalk. Fr. nearly black. Differs from *G. parisiense* only by having no hooked bristles upon the fruit.—Old walls and dry sandy places. A.? VI. VII. E.

11. *G. saccharatum* (All.); l. about 6 in a whorl linear-lan-

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ceolate with marginal prickles pointing forwards, st. rough with decurved prickles, *peduncles axillary 3-flowered, lateral fl. barren, fr. warted* reflexed.—*E. B.* 2173.—St. procumbent, spreading. Fl. small, pale yellow. Fr. large, a double globe, quite covered with large pyramidal tubercles.—Carse of Gowrie and near Forfar. Malton, Yorkshire. A. VI.—VIII. E. S.

12. *G. tricorne* (With.); *l.* 6—8 *in a whorl* linear-lanceolate with marginal *prickles pointing backwards*, st. rough with deflexed prickles, peduncles axillary 3-flowered, *fr. granulated* reflexed. —*E. B.* 1641.—St. procumbent, spreading. Fl. small, all 3 usually perfect in structure but seldom more than the middle one fertile. Fr. large, a double globe, covered with small granulations.—Dry calcareous fields. A. VI.—IX. E.

13. *G. Aparine* (L.); l. 6—8 in a whorl linear-lanceolate with marginal prickles pointing backwards, st. rough with deflexed prickles, peduncles axillary few- (about 3) flowered, fruitstalks divaricated straight, *fruit* covered *with* short *hooked bristles.*—*E. B.* 816.—St. straggling amongst bushes, 3—4 feet long. The marginal prickles near the extremity of the l. point forwards, the rest backwards. Fr. small. Peduncles or rather flowering branches with several leaves at the primary divisions. Fr. large.—Common.—A. VI.—VIII. *Goose-grass. Cleavers.*

14. *G. spurium* (L.); l. 6—8 in a whorl linear-lanceolate with marginal prickles pointing backwards, st. rough with deflexed prickles, peduncles axillary with 3—9 *flowers*, fruitstalks divaricated straight, fr. smooth.—*E. B.* 1871.—Closely resembling the preceding and perhaps only a variety of it; distinguished by its more numerous flowers, floral leaves solitary ("or in pairs"), and fruit of about half the size, which is said to be always glabrous in British specimens. There is a continental variety (*G. Vaillantii* DC.) which only differs by having its small fruit hispid as in *G. Aparine*.—Forfar. A. VII. S.

15. *G. boreale* (L.); *l.* 4 *in a whorl* lanceolate 3-nerved, st. erect panicled, *corymbs terminal contracted*, fruitstalks patent, *fr. covered with hooked bristles.*—*E. B.* 105.—St. about 18 in. high, with many leafy branches. Fl. white in compact terminal corymbs. Fr. hispid in the British plant.—Moist rocky places. P. VII. VIII.

4. Rubia *Linn.*

1. *R. peregrina* (L.); l. 4 in a whorl elliptic or lanceolate shining smooth above without veins the margin and keel rough with reflexed bristles.—*E. B.* 851.—St. spreading, square. L. rigid, persistent. Cor. rather rotate than campanulate, 5-cleft: lobes oval suddenly narrowed into a slender point.—Stony and sandy thickets in the south. P. VI.—VIII. *Wild Madder.*—E. I.

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Order XLIV. VALERIANEÆ.

Calyx superior, limb various, toothed, obsolete or involute and ultimately resembling a pappus. Cor. tubular, 3—5-lobed, unequal or irregular often spurred or gibbous at the base. Stam. 1—5, inserted in the tube, free. Ovary with 1 perfect cell and often 2 abortive cells, ovule solitary pendulous. Fr. dry.

1. CENTRANTHUS. *Cor.* regular, 5-lobed, *with a spur. Stam.* 1. Fr. 1-celled, indehiscent, crowned with the limb of the calyx expanded into a feathery pappus.

2. VALERIANA. *Cor.* regular, 5-lobed, *without a spur. Stam* 3. *Fr.* 1-*celled*, indehiscent crowned with the limb of the calyx expanded into a feathery pappus.

3. VALERIANELLA. Cor. regular, 5-lobed, without a spur. Stam. 3. *Fr.* 3-*celled*, indehiscent, *crowned with the erect unequally toothed limb of the calyx*, 2 of the cells usually empty inflated or filiform.

1. CENTRANTHUS *DeCand.*

†1. *C. ruber* (DC.); l. ovate-lanceolate, spur much shorter than the tube of the corolla and twice as long as the germen.—*Valeriana* (Sm.) *E. B.* 1531.—St. 1—2 feet high. Fl. purple.—Chalk-pits and old walls. P. VI.—IX. *Red Valerian.*

[*C. Calcitrapa* (Dufr.); radical l. ovate entire, stem l. pinnatifid, spur very short, is naturalized at Eltham in Kent.]

2. VALERIANA *Linn.*

1. *V. officinalis* (L.); *l. all pinnate*, leaflets dentate terminal one not larger than the others, st. sulcate, fr. glabrous.—*E. B.* 698. *St.* 9.—St. 2—4 feet high. Fl. flesh-coloured. Radical l. on long stalks.—Leaflets lanceolate, in 7—10 pairs; tube of the corolla funnelshaped about as long as the limb; "fr. narrowed upwards; root without scions."—*β. sambucifolia*; leaflets in 4—5 pairs, those of the radical l. ovate acute, of the stem l. oblong-lanceolate acute; tube of the cor. cylindrical nearly twice as long as the limb; "fr. not narrowed upwards;" root producing scions. *V. sambucifolia* (Mikan.) DC., Koch, Reich., Wimm., Tausch! My specimens agree exactly with Bohemian ones from Tausch. Probably a distinct species, but I am not certain that the above characters are permanent.—Ditches and damp places. P. VI. VII. *Valerian.*

†2. *V. pyrenaica* (L.); *l. heartshaped* serrate stalked, upper l. with 1—2 pairs of small lanceolate leaflets.—*E. B.* 1591.—St. 2—3 feet high, furrowed. Fl. light rose-coloured.—Woods in Scotland. P. VI. VII. S.

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3. *V. dioica* (L.); fl. imperfectly diœcious, *radical l. ovate* stalked, *stem l. pinnatifid* with a large terminal lobe, fr. glabrous. —*E. B.* 628. *St.* 9.—St. 6—12 in. high, simple. Fl. flesh-coloured. Root creeping.—Boggy places. P. V. VI. E. S.

3. VALERIANELLA *Moench.*

* *Fruit with* 2 *barren cells.*

1. *V. olitoria* (Moench); fr. compressed oblique, *fertile cell corky on the back,* barren cells without furrows: dissepiment incomplete, bracts ciliated.—*E. B.* 811. *St.* 2. 3. *R. Icon. t.* 60. *Fedia* Hook.—L. ovate-spathulate, upper ones narrower. Fl. in terminal compact heads, involucrated with oblong linear bracts. Fr. 3-celled; 1 fertile with its back formed of a thick gibbous mass of spongy cellular tissue which is usually traversed by a single furrow and separated from the 2 barren cells by a groove on each side; the 2 barren cells separated by an incomplete dissepiment, each with a slender rib on its side and their junction marked by a slight furrow.—Corn-fields and banks. A. V. VI. *Corn Salad.*

2. *V. carinata* (Loisel.); *fr. oblong boatshaped* crowned with 1 straight tooth, *cells nearly equal* each with a single rib on the back, barren cells contiguous in their whole length and with a deep furrow between them, fl. capitate.—Fedia *E. B. S.* 2810. *R. Icon. t.* 61.—Fl. pale blue. Root leaves spathulate, those of the stem oblong. Bracts ciliated. Section of the fr. crescent-shaped.—Hedge-banks, rare. A. IV.—VI. *Lambs' Lettuce.* E. S.

3. *V. Auricula* (DC.); fr. subglobose crowned with 1 erect membranous leaf, *barren cells larger than the fertile one inflated* contiguous having a narrow furrow between them, fl. scattered. —Fedia *E. B. S.* 2809.—Fl. distant, in the forks of a repeatedly dichotomous panicle. Lower l. obovate attenuate downwards, upper l. oblong. Bracts ciliated. Section of the fruit nearly round. Crown of one oblong obtuse obliquely truncate tooth, sometimes with a minute tooth on each side, or (*β. tridentata*) of 3 acute teeth, of which one is much the longest and often 3-pointed. —Cultivated land. A. VII. VIII.

** *Barren cells* 0, *or reduced to a rib.*

4. *V. dentata* (Deitr.); *fr.* oval *crowned with the small* oblique equally 4-toothed *calyx flat in front with an oblong space* inclosed between 2 elevated curved ribs (barren cells) convex behind, corymb spreading: branches long divaricated.—*E. B.* 1370.—Teeth of the crown spreading or all incurved except the largest. Fr. smooth or hairy (*β. mixta*). Fl. corymbose.—Corn-fields and banks. A. VI. VII.

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5. *V. eriocarpa* (Desv.); fr. oval crowned with the large oblique open unequally 5—7-toothed calyx flat in front with an oval space inclosed between 2 elevated curved ribs (barren cells) convex behind, corymb condensed: branches short.—Very different in habit from the preceding but scarcely affording any specific character. It may be a variety.—Great Ormes Head, N. Wales. A. VI. E.

Order XLV. DIPSACEÆ.

Fl. capitate. Cal. superior, surrounded by an involucre which closely invests the ripe fruit. Cor. 4—5-fid with unequal lobes. Stam. 4, inserted in the tube, free, filaments not jointed. Style 1. Stigma simple. Ovary 1-celled with a pendulous ovule. Fr. crowned with the pappus-like calyx. Embryo in fleshy albumen.

1. DIPSACUS. Inner calyx cupshaped, outer forming a thickened margin to the germen. Cor. 4-fid. *Receptacle with spinous scales* shorter than the involucre. Fr. with 4 sides and 8 little depressions.

2. KNAUTIA. Inner calyx cupshaped with radiant teeth, outer terminating in 4 small teeth. *Receptacle hairy*: *scales* 0. Fr. with 4 sides and 4 little depressions.

3. SCABIOSA. Inner calyx of 5 bristles, outer membranous and plaited. *Receptacle scaly.* Fr. nearly cylindrical with 8 excavations.

1. DIPSACUS *Linn.*

1. *D. sylvestris* (L.); l. opposite undivided sessile, stem l. connate, *scales of the receptacle straight at the end longer than the flowers, involucres curved upwards.*—*E. B.* 1032.—St. 5—6 feet high, prickly, leafy, branched. Heads of fl. large, conical, overtopped by the slender ascending involucre.—Hedges and roadsides. B. VIII. IX. *Wild Teasel.*

*2. *D. Fullonum* (L.); l. opposite undivided sessile, stem l. connate, *scales of the receptacle hooked at the end as long as the flowers, involucres reflexed.*—*E. B.* 2080.—St. 5—6 feet high, prickly, leafy, branched. Heads of fl. obtuse, conical, about as long as the spinous spreading involucre.—West of England, scarcely wild. B. VIII. IX. *Teasel.* E.

3. *D. pilosus* (L.); *l. stalked with lateral leaflets,* scales of the receptacle obovate-cuspidate straight, involucres deflexed.—*E. B.* 877.—St. 3—4 feet high, branched, rough, leafy. Heads of fl. small, globose, longer than the involucres.—Moist shady places. B. VIII. E.

2. KNAUTIA *Coult.*

1. *C. arvensis* (Coult.); lower l. simple, stem l. pinnatifid,

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st. bristly, inner calyx with 8 or 16 somewhat awned teeth.—*E. B.* 659.—St. 2—3 feet high, slightly branched, with few leaves. Radical l. numerous, sometimes pinnately lobed. Fl. purple, in large convex long-stalked heads, outer ones usually unequal and radiant. Involucres bluntish.—Fields. P. VII. *Field Scabious.*

3. SCABIOSA *Linn.*

1. *S. succisa* (L.); root abrupt, heads of fl. and fr. nearly globose, *outer calyx hairy* 4-fid *herbaceous*: lobes ovate acute, inner calyx of 5 bristles, cor. 4-cleft, l. oblong entire, upper l. narrower mostly entire.—*E. B.* 878.—St. 1—2 feet high. Radical l. numerous, stem l. few. Fl. purplish-blue. St. and both sides of the l. hairy or glabrous.—Meadows and pastures. P. VII.—X. *Devil's bit.*

2. *S. Columbaria* (L.); heads of fr. globose, *outer calyx membranous plaited notched,* inner calyx of 5 nerveless bristles, cor. 5-cleft, radical l. oblong stalked crenate entire or lyrate, uppermost l. pinnatifid with linear segments.—*E. B.* 1311.—St. 12—18 in. high. Radical l. obtuse, or, rarely, lanceolate and acute, on long stalks. Fl. purplish. Involucres narrow.—Common on a calcareous soil. P. VII. VIII. E. S.

Order XLVI. COMPOSITÆ.

Fl. capitate. Cal. superior; limb entire, obsolete, forming a toothed bristly or feathery pappus. Cor. tubular or ligulate. Stam. 5, inserted in the tube, anthers united, syngenecious. Fr. an achenium with an erect seed without albumen.—The following arrangement of the genera is nearly that of Jussieu, as being more simple than that of DeCandolle, which is followed in the arrangement of the species.

Suborder I. CORYMBIFERÆ.

Florets all tubular forming a level top; marginal florets often ligulate. Stigma not jointed to the style.

* *Pappus more or less hairy.*

(1.) 1. EUPATORIUM. Heads few-flowered. Involucre imbricate oblong. Receptacle naked. Florets tubular-funnel-shaped, hermaphrodite. Anth. included. Branches of the style exserted, cylindrical obtuse.

(2.) 2. PETASITES. *Heads* many-flowered, *subdiœcious.* Fem. florets filiform, obliquely truncate, in many rows in the fem. heads, in 1 row in the herm. heads. Herm. florets tubular, few and central in the fem. heads, occupying the whole disk

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in the herm. heads. Receptacle naked. Involucre in one row.

(3.) 3. TUSSILAGO. *Heads* many-flowered, *heterogamous.* Fem. florets marginal, in many rows, narrowly ligulate. Male florets discoidal, tubular, 5-cleft. Receptacle naked. Involucre of one row of scales with membranous margins.

(4.) 25. SENECIO. Florets of the ray ligulate, fem., rarely 0; of the disk herm., tubular. Involucre cylindrical or conical of 1 row of equal *scales not membranous at the margin*, and several smaller scales at its base. Pappus pilose.

(5.) 24. CINERARIA. Involucre of 1 row of equal scales only. Otherwise like *Senecio.*

(6.) 23. DORONICUM. Florets of the ray ligulate, fem.; of the disk herm., tubular. *Involucre hemispherical of* 2 *or* 3 *rows of equal scales.* Pappus pilose, wanting in the ray.

(7.) 8. CHRYSOCOMA. *Heads not radiant.* Florets all herm., tubular. Receptacle naked, alveolate (alveoles with elevated dentate margins in our plant). Involucre imbricated. Pappus pilose. Fr. compressed, silky.

(8.) 4. ASTER. Heads radiant. Florets of the ray fem., ligulate, in 1 row; of the disk herm., tubular. Receptacle naked, alveolate. *Involucre imbricated* and a few scales on the peduncle. Pappus pilose, in many rows. Fr. compressed.

(9.) 5. ERIGERON. Heads radiant. Florets of the *ray* fem., ligulate, *in many rows*; of the disk mostly herm., tubular. Receptacle naked, foveolate. Involucre imbricated. Pappus pilose, in many rows. Fr. compressed.

(10.) 7. SOLIDAGO. Pappus pilose, in 1 row. Fr. terete. Otherwise like *Aster.*

(11.) 9. INULA. Heads radiant. Florets of the ray fem., ligulate, rarely subtubular; of the disk herm., tubular. Anth. with 2 bristles at the base. Receptacle naked. Involucre imbricated in many rows. *Pappus pilose, uniform, in* 1 *row.*

(12.) 10. PULICARIA. Involucre laxly imbricated in few rows. Pappus in 2 rows, outer short cuplike membranous toothed, inner pilose. Otherwise like *Inula.*

(13.) 21. GNAPHALIUM. Outer *florets* fem., central herm., *all tubular.* Pappus capillary. Receptacle flat, naked. Involucre hemispherical, imbricated; the scales equalling the florets but not intermixed with them.—Cor. of the fem. florets often obsolete.

(14.) 20. FILAGO. Outer florets fem., filiform, in several

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rows, *outermost ones intermixed with the inner scales of the involucre* or paleæ; central florets few, herm., tubular. Pappus capillary. Receptacle conical, scaly at the margin. Involucre subconical, imbricated, scales lanceolate longer than the florets.

(15.) 22. ANTENNARIA. Heads subdiœcious. *Male* florets tubular, style almost simple, *pappus clavate*. Fem. florets filiform, pappus capillary. Receptacle convex. Involucre hemispherical, imbricated, scales coloured at the end.

** *Pappus* 0, *membranous, or of* 2—3 *bristles.*

† Receptacle without scales. Heads heterogamous, radiant. Fl. of the ray fem., ligulate, in 1 row; of the disk herm., tubular.

(16.) 6. BELLIS. Involucre of 2 rows of equal obtuse scales. Receptacle conical. *Fr. compressed.* Pappus 0.

(17.) 15. CHRYSANTHEMUM. Involucre hemispherical. Receptacle plane or convex. *Fr. terete,* without wings, or slightly angular and somewhat winged. Pappus 0 or of 3 minute teeth.

(18.) 16. PYRETHRUM. Involucre hemispherical. Receptacle plane or convex. Fr. angular, not winged. *Pappus an elevated membranous border.*—It is probable that this genus ought to be combined with the preceding.

(19.) 17. MATRICARIA. Involucre nearly flat. *Receptacle elongate-conical.* Fr. angular, not winged. Pappus 0, or a slight membranous border.

†† Receptacle scaly. Pappus 0.

(20.) 12. ANTHEMIS. Heads heterogamous, radiant. Florets of the ray fem., or neuter, ligulate, in 1 row; of the disk herm., tubular. Receptacle convex or conical. Involucre imbricated, of few rows. Fr. terete, or obtusely tetragonal, without pappus, but with a more or less prominent margin.

(21.) 13. ACHILLEA. Heads heterogamous, radiant. Florets of the ray fem., ligulate, short; of the disk herm., tubular: *tube plano-compressed* 2-*winged.* Receptacle narrow, slightly elevated. Involucre ovate or oblong, imbricated. *Fr. compressed,* without pappus.

(22.) 14. DIOTIS. Heads homogamous, discoidal. Florets herm., tubular: tube compressed with 2 auricles at the base. Receptacle convex, with concave downy-topped scales. Involucre bellshaped, imbricated. *Fr.* compressed, *crowned with the persistent auricled tube of the cor.,* pappus 0.

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††† Receptacle without scales. Heads discoidal.

(23.) 18. ARTEMISIA. Florets of the disk herm., of the ray fem. slender in 1 row, or all herm. and tubular. Involucre roundish, imbricated. Receptacle naked or hairy. Fr. obovate, with a small epigynous disk, without pappus.

(24.) 19. TANACETUM. Florets as in *Artemisia*. Involucre hemispherical imbricated. Receptacle naked. Fr. oblong, angular, with a large epigynous disk (as broad as the fruit), crowned with a slight membranous border.

†††† Receptacle scaly. Pappus of 2—5 stiff bristles.

(25.) 11. BIDENS. Heads homogamous, discoidal, sometimes radiant. Florets (of the ray neuter, ligulate;) of the disk herm., tubular. Receptacle flat. Involucre of 2 rows, outer row spreading. Branches of the style surmounted by short cones. Fr. compressed, angular, rough at the edges, the angles terminating in 2—5 stiff retrorsely hispid bristles.

Suborder II. CYNAROCEPHALEÆ.

Florets all tubular forming a convex or hemispherical top. Stigma jointed to the style.

* *Pappus in* 1—2 *rows, not surrounded by an elevated margin.*

26. SAUSSUREA. Florets all herm., tubular. Anth. with ciliated setæ at the base. Involucre imbricated, unarmed. Receptacle scaly. *Pappus in 2 rows, outer of short rough bristles, inner feathery.*

27. CARLINA. Florets all herm., tubular. Anthers with ciliated appendages at the base. Involucre imbricated, outer scales lax leafy spinose, inner linear membranous coloured and resembling a ray. Receptacle with cleft scales. *Pappus in 1 row, branched and feathery, connected into* a ring below.

** *Pappus in many rows of different lengths: second row longest, placed within the margin which surrounds the epigynous disk, rarely* 0.

28. CENTAUREA. Anthers with papillose filaments, involucre imbricated. Receptacle chaffy. Fr. attached laterally above the base to the receptacle. Pappus pilose, rarely 0.

*** *Pappus in many rows not surrounded by a prominent margin.*

29. ARCTIUM. Involucre globose imbricated with scales ter-

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minating in hooked points. Receptacle flat, with rigid subulate scales. Fr. compressed, oblong. *Pappus* short, pilose, *distinct.*

30. ONOPORDUM. Receptacle honey-combed. Fr. 4-ribbed. Pappus rough. Otherwise like *Carduus.*

31. CARDUUS. Involucre imbricated with simple spinous pointed scales. Receptacle with fimbriated scales. Fr. compressed, oblong, with a somewhat fleshy terminal areola. *Pappus* long, pilose or plumose, *united into a ring at the base and deciduous.*—Includes *Cnicus* Linn. and *Cirsium* DC.

**** *Pappus in many rows. Filaments monadelphous.*

32. SILYBUM. Involucre imbricated: scales leafy at the base, narrowed into a long spreading spinous point. Receptacle scaly. Fr. compressed, its *terminal areola surrounded by a papillose ring.* Pappus pilose, united into a ring at the base, deciduous.

***** *Pappus in many rows of different lengths: inner row longest, surrounded by a margin.*

33. SERRATULA. Heads dicœcious by abortion. Involucre imbricated with sharp unarmed scales. Scales of the receptacle split longitudinally into linear bristles. Fr. compressed, not beaked, basal areola oblique. Pappus persistent.

Suborder III. CICHORACEÆ.

Florets all ligulate and perfect.

* *Receptacles without scales. Pappus* 0.

34. LAPSANA. Heads 8—12-flowered. Involucre with 1 row of erect scales and 4—5 short bracts at the base. Fr. compressed, striated, deciduous, not enveloped in the scales of the involucre.

** *Receptacle without scales. Pappus like a crown or of many entire broad scales.*

35. ARNOSERIS. Heads many-flowered. Involucre of 1 row of about 12 keeled linear-lanceolate *at length converging scales* and a few small bracts at the base. Fr. angular crowned with a short elevated entire margin.

36. CICHORIUM. Heads many-flowered. Involucre in 2 rows; outer of about 5 lax shortish *scales*; inner of 8—10 longer

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ones, converging, *at length reflexed.* Receptacle sometimes slightly pilose. Fr. obovate compressed striated. Pappus of 2 rows of minute erect chaffy scales.

*** *Receptacle scaly. Pappus feathery.*

37. HYPOCHÆRIS. Heads many-flowered. Involucre oblong, imbricated. Fr. glabrous, muricated, often beaked. Pappus in 2 rows, outer short and setaceous, inner long and feathery.

38. ACHYROPHORUS. Pappus in 1 row, feathery. Otherwise like *Hypochæris.*

**** *Receptacle without scales. Pappus feathery, or on the exterior fruits scaly.*

39. THRINCIA. Involucre oblong, in 1 row, with a few additional scales at the base. Receptacle punctured. Fr. beaked. Pappus in 2 rows; outer setaceous, deciduous; inner longer, feathery, dilated at the base. *Marginal row of fruits* enveloped in the scales of the involucre, scarcely beaked and *with a short crown-like* fimbriated *pappus.*

40. LEONTODON. Involucre subimbricated, exterior scales much smaller in 1—3 rows. Receptacle punctured. *Fr. uniform,* slightly beaked. *Pappus of all the fr. in 2 rows;* outer setaceous, persistent; inner longer *feathery* dilated at the base.

41. OPORINIA. Involucre subimbricated, exterior scales much smaller in several rows. Receptacle punctured. Fr. attenuated, uniform. *Pappus* of all the fr. *in* 1 *row, feathery,* dilated at the base.

42. TRAGOPOGON. Involucre simple, of 8—10 scales connected at the base. Receptacle punctured. Fr. longitudinally striated, with a long beak, areola lateral. *Pappus in many rows, feathery, interwooven in the ray.*

43. PICRIS. Involucre of 1 row of equal scales, *with unequal linear* often spreading *scales at the base.* Receptacle dotted. *Fr.* terete, *transversely striated, constricted or slightly beaked* above, areola terminal. *Pappus in 2 rows, feathery, external row subpilose.*

44. HELMINTHIA. *Involucre* in 1 row of equal scales, *surrounded by* 3—5 *leafy loose bracts.* Receptacle dotted. *Fr.* compressed, transversely rugose, *rounded at the end and with a slender beak* longer than itself. Pappus in several rows, feathery.

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***** *Receptacle generally without scales. Pappus filiform, very soft, deciduous, never feathery nor dilated at the base, silvery.*

45. LACTUCA. Heads few-flowered. Involucre imbricated in 2—4 rows, outer row shorter, scales with a membranous margin. Fr. plano-compressed, contracted and produced into a filiform beak which is not crowned nor muricated at the base.

46. TARAXACUM. Heads many-flowered. *Involucre double*; inner of 1 row, erect; outer of few short lax or adpressed imbricated scales. *Fr.* subcompressed, *muricated and suddenly contracted above,* produced into a filiform beak.

47. BARKHAUSIA. Heads many-flowered. Involucre double, inner of 1 row, outer of short lax scales. *Fr.* terete, all (or the inner ones only) *gradually contracted into a long beak.*

48. CREPIS. Heads many-flowered. Involucre double, inner of 1 row, outer of short lax scales. *Fr.* terete, *narrowed upwards or obscurely beaked.*

49. SONCHUS. Heads many-flowered. Involucre imbricated with 2 or 3 rows of unequal scales. *Fr. plano-compressed, truncate above* not beaked.

50. MULGEDIUM. Heads many-flowered. Involucre double, inner of 1 row, outer of short lax imbricated scales. *Fr. compressed constricted above and terminating in a ciliated disk.* Outer rows of the pappus rigid and brittle.

****** *Pappus rigid, brittle, at length brownish or yellowish. Otherwise like the preceding section.*

51. HIERACIUM. Heads many-flowered. Involucre imbricated with many oblong scales. Fr. terete, angular, furrowed, truncate above not beaked, with a very short crenulated margin.

ANOMALOUS GENUS.

52. XANTHIUM. Heads monœcious, homogamous. Male. Involucre of 1 row of free scales, many-flowered. Receptacle scaly. Cor. funnelshaped, 5-cleft. Anth. free. Stigma obtuse, entire.—Fem. fl. 2, inclosed within the involucre which is terminated by 1—2 beaks and covered with hooked spines and at length hardened over the fruit. Cor. filiform. Stam. 0. Stigmas 2, diverging, linear. Fr. compressed each occupying a cell in the involucre.

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* *TUBULIFORÆ.* Herm. florets tubular, regular, teeth 4 or 5.

Tribe I. *Eupatoriaceæ.*

Style of the hermaphrodite florets cylindrical with elongated slightly clavate branches which are downy above; stigmatic lines but little prominent often not extending as far as the middle of the branches.

Section 1. *EUPATORIEÆ.* Heads homogamous (florets all hermaphrodite).—Pappus pilose and rough.

1. EUPATORIUM *Linn.*

1. *E. cannabinum* (L.); l. in 3 or 5 deep lanceolate serrated segments the middle one longest.—*E. B.* 478.—St. herbaceous, erect, striated, scabrous, 2—3 feet high. Heads in a fastigiate corymb, 5—6-flowered; involucral scales about 10: 5 exterior short obtuse. Florets reddish-purple. L. downy. Herb slightly aromatic.—Banks of streams. P. VIII. IX. *Hemp-agrimony.*

Section 2. *TUSSILAGINEÆ.* Heads heterogamous or subdiœcious.

2. PETASITES *Gaert.*

1. *P. vulgaris* (Desf.); l. roundish-cordate unequally toothed downy beneath: basal lobes approximate, stigmas of the hermaphrodite florets short ovate.—*E. B.* 431 and 430. *St.* 2. 13.—Thyrsus long and lax in the female plant, ovate and dense in the male. Root thick, creeping extensively. Fl. appearing before the l., on stout erect stalks which are clothed with concave tumid petioles either leafless or with a small limb. L. very large, radical, ultimately often 3 feet broad, glabrous above.—In marshy places. P. IV. *Butter-bur.*

3. TUSSILAGO *Linn.*

1. *T. Farfara* (L.). The only species.—*E. B.* 429. *St.* 2. 10.—Root creeping extensively. Fl. appearing before the l., in bright yellow solitary heads, erect in blossom and seed, drooping before and after flowering, their stalks clothed with scaly smooth bracts. L. roundish-cordate, angular, toothed, downy beneath.—Moist chalky and clay soils. P. III. IV. *Coltsfoot.*

Tribe II. *Asteroideæ.*

Style of the hermaphrodite florets cylindrical with linear branches which are flat and equally and minutely downy on the outer surface and have narrow prominent stigmatic lines throughout.

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Section 1. *ASTEREÆ*. Heads never dicecious, mostly radiant. Anth. without appendages. L. alternate.

4. (8.) Aster *Linn.*

1. *A. Tripolium* (L.); st. glabrous corymbose, l. linear-lanceolate fleshy smooth, involucre imbricate: scales obtuse membranous the inner ones longer.—*E. B.* 87. *Tripolium vulgare* DC.—St. 1—2 feet high, erect, hollow, leafy, many-flowered. Heads large with a yellow disk and bright blue rays; rays often wanting.—Muddy salt marshes. P. VIII. IX.

5. (9.) Erigeron *Linn.*

1. *E. canadensis* (L.); *st.* much branched hairy *panicled many-flowered*, l. linear-lanceolate ciliated.—*E. B.* 2019.—St. erect, 1—2 feet high. Heads numerous, small, yellowish. Involucres cylindrical, scarcely shorter than the florets of the ray, finally spreading.—Waste ground, rare. A. VIII. IX. E.

2. *E. acris* (L.); *st. corymbose, branches* alternate *bearing single heads*, l. linear-lanceolate entire spreading, lower l. narrowed below, *ray erect scarcely longer than the disk*, inner female florets filiform numerous.—*E. B.* 1158.—St. erect, 6—18 in. high, simple below, branching in a corymbose manner above. Fl. yellow, the ray pale blue.—Dry gravelly places. B. VII. VIII. *Fleabane.*

3. *E. alpinus* (L.); st. mostly with a single head, l. lanceolate, lower l. narrowed below, *ray spreading twice as long as the disk*, "inner female florets tubular-filiform numerous."—*E. B.* 464. *St.* 38. 11.—St. 4—8 in. high, usually terminating in a solitary head with a yellow disk and light purple ray. Involucre hairy. —β? *uniflorus*; "involucre woolly, female florets all ligulate." *E. uniflorus* Sm. *E. B.* 2416.—Highland mountains. P. VII. VIII. E. S.

6. (16.) Bellis *Linn.*

1. *B. perennis* (L.); l. obovate-spathulate single-ribbed crenate-dentate.—*E, B.* 424.—St. a short procumbent rhizoma producing l. only at its extremity. Flowerstalks simple, each bearing a single head. Sometimes all the florets are ligulate, rarely all are tubular.—Banks and pastures. P. III.—X. *Daisy.*

7. (10.) Solidago *Linn.*

1. *S. Virgaurea* (L.); st. erect slightly angular, l. lanceolate narrowed at both ends, lower l. elliptical stalked serrated, raceme erect simple or compound, involucral scales lanceolate acute, fr. downy.—*E. B.* 301. *St.* 9.—St. usually 1—3 feet high, leafy, nearly simple, terminating in a long cluster of yellow heads.—β. *cambrica* (Sm.); st. 2—6 in. high, l. ovate-lanceolate, heads

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larger. *S. cambrica* Huds.—Woods and thickets. β. on mountains. P. VII.—IX. *Golden Rod.*

8. (7.) CHRYSOCOMA *Linn.*

1. *C. Linosyris* (L.); herbaceous, l. linear glabrous, heads corymbose, involucres lax.—*E. B.* 2505. *Linosyris vulgaris* DC. —St. 12—18 in. high, simple, leafy. L. single-ribbed, smooth or scabrous, very numerous, more or less punctate. Fl. yellow. —Limestone cliffs, rare. P. VIII. IX.

Section 2. *INULEÆ.* Heads never dicœcious, rarely homogamous or discoid, generally heterogamous and radiant. Female florets ligulate. Anth. with appendages. Receptacles without scales. L. alternate.

9. (11.) INULA *Linn.*

1. *I. Helenium* (L.); *outer scales of the involucre ovate, inner obovate,* l. unequally dentate downy beneath cordate-ovate acute clasping, root l. stalked elliptic-oblong, fr. quadrangular glabrous.—*E. B.* 1546.—St. 3—4 feet high, round, furrowed, solid, leafy, branched above. Heads few-together or solitary, terminal, very large; florets bright yellow. Involucral scales reflexed.—Moist pastures. P. VII. VIII. *Elecampane.*

2. *I. Conyza* (DC.); *scales of the involucre all linear,* l. ovate-lanceolate downy denticulate, lower l. narrowed into a footstalk, florets of the ray subligulate, fr. terete.—*Conyza squarrosa E. B.* 1195.—St. 1—2 feet high, leafy. Heads corymbose. Involucral scales reflexed, leafy. Florets yellow, those of the circumference between tubular and ligulate, deeply divided on the inner side.—Calcareous soils. P. VII.—IX. *Plowman's Spikenard.* E.

3. *I. crithmoides* (L.); *scales of the involucre* linear *taper-pointed, l. fleshy* linear obtuse or with 3 points.—*E. B.* 68.—St. about a foot high, slightly branched near the top, each branch terminating in a solitary head with an orange-coloured disk and yellow rays.—On rocks by the sea. P. VII. VIII. *Golden Samphire.*

10. (12.) PULICARIA *Gaert.*

1. *P. vulgaris* (Gaert.); *l. lanceolate* wavy *narrow at the base* and somewhat clasping, st. much branched downy, heads lateral and terminal hemispherical with *very short rays.—Inula* (L.) *E. B.* 1196.—St. 6—12 in. high, leafy. Heads small, florets yellow.—Moist sandy heaths. A. VIII. IX. E.

2. *P. dysenterica* (Gaert.); *l. oblong* cordate at the base clasping obsoletely toothed downy beneath, st. panicled woolly, heads axillary and terminal corymbose, *rays much longer than the disk.*

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—*Inula* (L.) *E. B.* 1115.—St. 12—18 in. high, leafy. Heads larger than those of the last, florets bright yellow.—Damp places. P. VIII. IX. *Fleabane.*

Tribe III. *Senecionideæ.*

Style of the hermaphrodite florets cylindrical with long linear branches terminated by a bunch of hairs or sometimes extending beyond the hairs into a short cone or elongated appendage. Stigmatic lines broad and prominent and extending as far as the hairs.

Section 1. *HELIANTHEÆ.* Heads usually heterogamous and radiant, or homogamous and discoid. Anth. without appendages. Receptacle paleaceous throughout or only near the margin. Cor. of the hermaphrodite florets with thickened lobes. Pappus aristate in our plants.

11. (25.) Bidens *Linn.*

1. *B. tripartita* (L.); *l. stalked 3-partite*: segments lanceolate serrate, fr. obovate-cuneate usually with 2 bristles.—*E. B.* 1113. —St. 1—3 feet high, with opposite branches. L. narrowed into winged footstalks, sometimes undivided. Heads terminal, solitary, slightly drooping. Florets brownish-yellow.—*β. radiata*; with radiant 3-toothed marginal florets.—Marshy places. A. VIII. IX.

2. *B. cernua* (L.); *l. sessile* connate lanceolate *undivided* serrate, fr. cuneate usually with 3—4 bristles.—*E. B.* 1114.—St. 1—3 feet high, with opposite branches. L. simple, narrowed below but not stalked. Heads terminal, solitary, drooping. Florets brownish-yellow.—*β. radiata*; with radiant marginal florets. *Coreopsis Bidens* (L.) *St.* 1. 16.—Watery places. A. VIII. IX.

Section 2. *ANTHEMIDEÆ.* Heads usually heterogamous, ray female or neuter. Anth. without appendages. Branches of the style truncate, bearded, very rarely terminated by a cone. Pappus often wanting or crownlike, rarely formed of scales or capillary hairs.

12. (20.) Anthemis *Linn.*

* *Scales of the receptacle lanceolate or oblong terminating in an acute rigid point.*

1. *A. arvensis* (L.); *receptacle conical*, fr. tetragonal crowned with a very narrow border, l. bipinnatifid hairy, segments linear-lanceolate.—*E. B.* 602. *St.* 27. 16.—St. 1—2 feet high, striated, downy, much branched. Segments of the l. parallel and at

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length converging. Heads on long stalks, solitary, terminal, disk convex bright yellow, ray white. Scales just appearing above the florets of the disk.—Borders of cultivated fields, rare. A. VI. VII. *Corn Chamomile.*

2. *A. tinctoria* (L.); *receptacle hemispherical,* fr. tetragonal crowned with a membranous undivided border, l. bipinnatifid downy beneath, segments parallel decurrent serrated, ray shorter than the breadth of the disk.—*E. B.* 1472.—St. 1—2 feet high, much branched, cottony. L. green, rough or hairy above, cottony and white beneath. Heads on long stalks, solitary terminal, disk and rays bright yellow. Scales not protruding.—Mountainous places, rare. B.? VII. VIII. E. S.

3. *A. anglica* (Spr.); *receptacle flat,* fr. crowned with a very narrow entire border, l. pinnatifid somewhat hairy, lobes inciso-serrate acute bristle-pointed rather fleshy.—*A. maritima* Sm. *E. B.* 2370.—St. prostrate. Involucre slightly downy. Disk yellow, ray white.—I am only acquainted with this plant from the figure and description of Smith, who considered it as the *A. maritima* (L.) from which it is very different. (See DC. Prod. vi. 10.) That plant has glabrous fleshy punctured pinnatifid l. with lanceolate scarcely acute lobes either quite entire or with 2 or 3 teeth at their apex, and the scales of its receptacle have a much shorter point. *A. anglica* appears to be closely allied to *A. altissima* and *A. Cota.*—Sea-shore. Sunderland. *Mr. Robson.* Bear Haven, Kerry. *Mr. W. Wilson.* A. VII. E. I.

** *Scales of the receptacle linear-setaceous acute.*

4. *A. Cotula* (L.); receptacle elongate-conical, fr. terete tubercular-striated crowned with a crenulated margin surrounding a slightly convex disk, l. bipinnatifid nearly glabrous: lobes linear acute mostly entire.—*E. B.* 1772.—St. 1—2 feet high, branched, angular, furrowed. Heads solitary, on long terminal stalks; disk yellow, ray white. Involucral scales obtuse, with white membranous margins. Whole plant fetid and acrid.—Fields and waste places. A. VII.—IX.

*** *Scales of the receptacle thin membranous obtuse.*

5. *A. nobilis* (L.); receptacle conical, fr. "subtrigonous smooth crowned with an obsolete margin," l. bipinnate, leaflets linear-subulate slightly downy rather fleshy acute.—*E. B.* 980. *St.* 27. 15.—St. procumbent, 1 foot long, much branched. Heads solitary, terminal, disk yellow, ray white. Whole plant pleasantly aromatic.—Gravelly places. P. VII. VIII. *Chamomile.* E. I.

13. (21.) Achillea *Linn.*

1. *A. Ptarmica* (L.); *l. shining linear-lanceolate* attenuated *acute glabrous* smooth *uniformly and finely serrate,* serratures ad-

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pressed mucronate minutely scabrous at the margin, ray as long as the involucre, corymb compound.—*E. B.* 757. *St.* 10.—St. about 2 feet high, slightly branched above, erect, leafy, angular, smooth. Involucral scales with a dark brown membranous margin. Limb of the radiant florets longer than broad, white. Disk broad, white. L. sometimes very narrow; the serratures closely adpressed and the lower ones not deeper than the others.—Moist meadows and thickets. P. VII. VIII. *Sneezewort.*

2. *A. serrata* (Retz.); *l. opaque* linear-lanceolate *bluntish downy* thickly punctured *coarsely and doubly serrate* with spreading serratures *laciniate and radiating at the base,* ray about as long as the involucre, corymb nearly simple.—*E. B.* 2531.—St. simple, erect, leafy, with axillary leafy tufts, downy. Involucral scales with a reddish-yellow membranous margin. Limb of the radiant florets pale yellow, broader than long. Disk darker yellow. L. not at all attenuated and very different in shape, consistency and sculpture from those of the preceding.—Near Matlock. *E. B.* Temple Cloud, Som. *Mr. T. B. Flower.* P. IX. E.

3. *A. tomentosa* (L.); *l. with a linear-lanceolate outline pinnatifid* woolly: *lobes* crowded linear acute *trifid* in the lowermost leaves 2—3-fid in the intermediate *uppermost simple,* corymb repeatedly compound, ray about half as long as the involucre.—*E. B.* 2532. *St.* 59. 15.—St. 10—12 in. high, decumbent at the base, woolly, simple. Scales of the involucre woolly, edged with brown. *Disk and rays golden yellow.*—Afflunchart, Bamffshire. *Rev. W. Little.* Near Newcastle, Co. Down. *Miss Keown.* P. VII. VIII. S. I.

4. *A. Millefolium* (L.); *l. with a lanceolate outline* bipinnatifid woolly or nearly glabrous: *lobes cut with linear* segments, corymb dense, rays about half as long as the involucre.—*E. B.* 758. *St.* 10.—St. erect, 6—18 in. high, nearly glabrous or woolly. Scales of the involucre nearly glabrous with a brown margin. Heads small. *Florets white,* occasionally reddish or purple.—Pastures and waste ground. P. VI.—VIII. *Yarrow. Millefoil.*

14. (22.) Diotis *Desf.*

1. *D. maritima* (Cass.). The only species.—*E. B.* 141.—Whole plant densely cottony and white. St. about a foot high, recumbent below, densely leafy, corymbose above. L. sessile, oblong, obtuse, flat, crenate, persistent. Heads in terminal corymbose tufts. Involucre cottony. Florets yellow.—Sandy seashores, rare. P. VIII. IX. E.

15. (17.) Chrysanthemum *Linn.*

1. *C. Leucanthemum* (L.); lower l. obovate stalked, stem l. oblong obtuse cut sessile pinnatifid at the base, *involucral scales*

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lanceolate obtuse *with a narrow membranous margin*, florets of the *ray white*, fr. without a border.—*E. B.* 601. *St.* 2. 11.—St. erect, 1—2 feet high, simple, striated. Lower l. narrowing into a winged and auricled stalk. Heads solitary, terminal, large, disk yellow.—Fields. P. VI.—VIII. *Ox-eye.*

2. *C. segetum* (L.); l. glabrous toothed dilated outwards and lobed, upper l. clasping, *involucral scales* ovate obtuse *with a broad membranous margin*, florets of the *ray yellow.*—*E. B.* 540.—St. a foot high, alternately branched, angular. L. inciso-serrate or lobed in the upper part, simply toothed below. Heads solitary, terminal, florets all yellow—Corn-fields. A. VI.—VIII. *Corn Marigold.*

16. (18.) PYRETHRUM *Sm.*

1. *P. Parthenium* (Sm.); *l. stalked pinnate, segments ovate or oblong* pinnatifid: lobes cut, st. branched, *heads corymbose*, involucral scales linear obtuse, fr. crowned with a short jagged membrane.—*E. B.* 1231.—St. erect, 2 feet high, branched, furrowed, panicled. Heads in small corymbs terminating the stem and branches, disk yellow, ray white.—Waste places, not very common. P. VII. VIII. *Feverfew.*

2. *P. inodorum* (Sm.); *l. sessile pinnatifid in* numerous *capillary* pointed *segments*, st. branched, *heads solitary*, involucral scales lanceolate obtuse, *fr.* rugose and *with* 2 *round glandular dots on the external face* just below the elevated entire border.—*E. B.* 676. *Matricaria* DC.—St. erect, 12—18 in. high, smooth, angular. L. in very narrow elongated segments "furrowed beneath." Heads solitary, terminating the branches, ray white, disk yellow. Fr. with 3 prominent smooth ribs, the intermediate spaces rugose, 2 of them narrow and internal, 1 broad and external.—Fields and waste places. A. VII. VIII.

3. *P. maritimum* (Sm.); l. sessile doubly pinnate, *segments fleshy* linear entire bluntish *"convex above keeled beneath,"* st. branched diffuse, heads solitary, involucral scales lanceolate obtuse, *fr.* slightly rugose and with 2 *elongated glandular spots on the external face* just below the lobed elevated border.—*E. B.* 979.—St. mostly procumbent, reddish. L. with short crowded segments. Heads as in *P. inodorum*. Fr. with 3 prominent smooth ribs with a narrow intermediate rugose space externally but the 2 internal spaces reduced to simple lines separating the ribs. If these characters are permanent, this is a distinct species.—Sea-shores. P. VII. VIII.

17. (19.) MATRICARIA *Linn.*

1. *M. Chamomilla* (L.); l. bipinnate smooth, segments capillary simple or divided, heads solitary, receptacle hollow, involucral

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scales linear obtuse.—*E. B.* 1232.—St. erect, 1 foot high, branched. Heads on long naked stalks, disk yellow, ray white.—Cultivated and waste ground. A. VI. VII. *Wild Chamomile.*

18. (23.) ARTEMISIA *Linn.*

* *Receptacle hairy.*

1. *A. Absinthium* (L.); heads drooping hemispherical heterogamous, l. silky in many deep lanceolate obtuse segments, outer involucral scales linear silky, inner roundish scarious.—*E. B.* 1230.—St. bushy, 1—2 feet high. Heads in erect aggregate leafy panicles. Floral l. simple. Florets dull yellow, the outer row female.—Waste ground. P. VII. VIII. *Wormwood.*

** *Receptacle naked.*

2. *A. campestris* (L.); heads drooping ovate glabrous heterogamous, *l. silky* with many linear-lanceolate mucronate segments, stem l. once or twice pinnate with linear segments, st. wandlike procumbent before flowering, *involucral scales ovate glabrous with a scarious margin.*—*E. B.* 338.—Barren st. cæspitose. Flowering st. slender, 1—2 feet long, ascending when the flowers appear, leafy, smooth. Florets yellow, involucre purplish.—Sandy heaths in Norf. and Suff., rare. P. VIII. IX. E.

3. *A. vulgaris* (L.); heads ovate heterogamous, *l. woolly* and white beneath pinnatifid *with lanceolate acuminate cut and serrated segments, involucral scales woolly.*—*E. B.* 978.—St. 2—3 feet high, erect, leafy. Clusters leafy, nearly simple, erect. Fl. few, reddish or brownish yellow.—Waste ground. P. VII.—IX. *Mugwort.*

4. *A. maritima* (L.); heads oblong, *florets few all perfect, l.* downy *pinnatifid with linear obtuse segments,* involucral scales oblong outer woolly inner scarious.—*E. B.* 1706.—St. recumbent or ascending, woolly, much branched. Florets reddish-yellow. Racemes unilateral, heads drooping.—*β. gallica*; racemes more dense, heads erect. *E. B.* 1001.—Salt marshes. P. VIII. IX.

[5. *A. cærulescens* (L.); heads oblong, florets few all perfect, *l.* hoary lanceolate *undivided,* those of the barren shoots pinnatifid. —*E. B.* 2426.—Boston and Isle of Wight. Not found for many years. P. VIII. IX.] E.

19. (24.) TANACETUM *Linn.*

1. *T. vulgare* (L.); l. pinnatifid, leaflets serrated.—*E. B.* 1229. *St.* 20.—Heads in a terminal corymb. Florets golden yellow. Fr. with an entire crown. St. 2—3 feet high.—Way-sides. P. VIII. *Tansy.*

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Section 3. *GNAPHALIEÆ.* Heads homogamous or heterogamous, discoid. *Anthers with appendages.* Branches of the styles of the hermaphrodite florets truncate. Pappus pilose or setaceous, rarely 0.

20. (14.) FILAGO *Linn.*

1. *F. germanica* (L.); cottony, *st. proliferous at the summit,* l. lanceolate wavy, heads in axillary and terminal globose clusters, *outer involucral scales cuspidate* cottony with glabrous points.—*E. B.* 946. *St.* 12. *Gnaphalium* Sm.—St. erect or ascending, 4—12 in. long, bearing a solitary terminal cluster of heads, afterwards producing from just below the cluster 2 or more ascending branches which are again proliferous. Florets yellow.—Dry sandy and gravelly fields. A. VII.—IX. *Common Cudweed.*

2. *F. minima* (Fries); *st. dichotomously branched,* l. linear-lanceolate acute *flat* adpressed, heads conical in lateral and terminal clusters longer than the leaves, *outer involucral scales bluntish* cottony with glabrous points.—*E. B.* 1157. *Gnaphalium* Sm.—St. slender, mostly erect, 2—6 in. high, branched, the branches dichotomous. Florets yellowish in very small heads. Whole plant cottony, grayish.—Dry sandy and gravelly places. A. VI.—IX.

3. *F. gallica* (L.); st. dichotomously branched, *l. linear* acute revolute, *heads* conical in axillary terminal clusters *shorter than the leaves,* outer involucral scales cottony with bluntish glabrous points.—*E. B.* 2369. *Gnaphalium* Sm.—St. 6—8 in. high, slender. L. narrowing upwards from the base.—Dry gravelly places, very rare. A. VII.—IX. E.

21. (13.) GNAPHALIUM *Linn.*

1. *G. luteo-album* (L.); *st. simple branched at the base* slightly corymbose above, *heads* densely clustered *leafless,* l. linear-oblong wavy woolly on both sides half clasping, lower l. broader at the end and obtuse, upper l. narrowing and acute.—*E. B.* 1002. —Woolly. St. 3—12 in. high, decumbent below, then erect or ascending. Heads aggregated at the extremities of the stem, involucre straw-coloured, florets tinged with red.—Sandy fields, very rare. A. VII. VIII. E.

2. *G. uliginosum* (L.); *st. diffuse much branched, heads* in terminal dense clusters *shorter than the leaves,* l. linear-lanceolate cottony on both sides.—*E. B.* 1194.—St. 3—5 in. high, much branched, decumbent or ascending. Heads aggregated at the extremity of the st. and branches, involucre yellowish-brown.—Wet sandy places. A. VII. VIII.

3. *G. sylvaticum* (L.); *st. simple* nearly erect *heads in axillary clusters forming a leafy spike,* l. linear-lanceolate upper ones narrower.—*E. B.* 913.—St. 3 in. to 1½ or 2 feet high, the upper part

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forming a simple or slightly branched leafy interrupted spike. Varies with the leaves silky or cottony on both sides and the spike shorter (G. sylvaticum *Sm.*, G. Norvegicum *Retz.*) or nearly if not quite glabrous above and the spike elongated (G. rectum *Sm. E. B.* 124. G. sylvaticum *Koch*). If these plants are distinct I must confess myself unacquainted with the true *G. norvegicum*, as figured by Hoppe in *St.* 38. 5, for I believe that the *G. rectum* (Sm.) is the *G. sylvaticum* (Linn.).—Thickets and pastures, rare.—"*G. sylvaticum* on the Highland mountains." *Sm.* P. VII.—IX.

4. *G. supinum* (L.); *st.* decumbent or ascending *not cæspitose*, heads aggregated terminal *in a capitate spike*, l. linear or oblong-linear downy on both sides.—*E. B.* 1193.? *Hoppe in St.* 48. 7.—Much like the following but not cæspitose, with broader l. which although downy are green above, and a more leafy stem. Heads usually more than 1, close together, forming a sort of capitate spike.—I have seen no native specimens. Mr. Shuttleworth has pointed out the distinctions between this and the following, both of which he states that he has received from Scotland, in the *Mag. Zool. Bot.* ii. 192.—Highland mountains. P. VII.—S.

5. *G. pusillum* (Haenke); *cæspitose*, st. decumbent, flowering st. erect, *heads solitary* 1—5 *distant*, l. linear downy on both sides mostly radical.—*Lightf. Scot. t.* 20. *f.* 2. (good).—Height 2—3 in. Cæspitose, very leafy at the root. Flowering st. with few leaves and often only a single head. Heads always scattered. L. downy and white on both sides.—Smith appears to have confounded this with the preceding.—Highland mountains. P. VII. S.

22. (15.) ANTENNARIA *R. Br.*

1. *A. dioica* (Gaert.); *shoots procumbent*, flowering st. simple erect, corymb dense terminal, involucral scales oblong dilated upwards obtuse coloured, *radical l. obovate-spathulate* glabrous above cottony beneath, stem l. nearly equal linear-lanceolate adpressed.—*E. B.* 267. *Gnaphalium* Sm.—Root of long simple fibres. St. prostrate, woody, terminating in a tuft of numerous l. and producing prostrate leafy scions. Flowering st. 4—8 in. high, quite simple, cottony. Heads 4—5, erect, slightly stalked. Involucral scales white or tinged with rose-colour.—*β. hyperborea*; l. cottony on both sides.—*E. B. S.* 2640.—Mountain heaths. P. VI. VII.

†2. *A. margaritacea* (R. Br.); *st. erect* branched above corymbose leafy, *l. linear-lanceolate* acute cottony below, heads in level-topped corymbs.—*E. B.* 2018.—St. 2—3 feet high, cottony. L. alternate, slightly cottony above, densely below. Involucre white. Florets yellowish.—Moist meadows, rare. P. VIII.

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Section 4. *SENECIONEÆ*. Heads homogamous or heterogamous, discoid or radiant. *Anth. without appendages.* Pappus pilose or setaceous, rarely 0.

23. (6.) Doronicum *Linn.*

†1. *D. Pardalianches* (L.); *l. cordate* denticulate, *lowermost l. on long stalks, intermediate with clasping auricles at the base of the stalk,* uppermost sessile clasping, root creeping tuberous. —*E. B. S.* 2654.—St. 2—3 feet high, erect, solitary, hollow, hairy. L. hairy, minutely toothed, soft, blunt, the uppermost acute. Petioles except the lowest winged or auricled. Heads several, involucral scales lanceolate-subulate. Florets yellow. The earlier heads overtopped by the latter ones. Fr. oblong, furrowed.—Damp and hilly woods and pastures, rare. P. V.—VII.

†2. *D. plantagineum* (L.?); *l. ovate* denticulate, radical on long stalks rounded or subcordate produced at the base, *stem l. sessile* clasping the lowermost with a winged and auricled stalk, root.....—*E. B.* 630. (excl. leaf.)—Crown of the root woolly. St. 2—3 feet high. Stem l. narrowed in their lower half but sessile, uppermost with a long taper point. Heads usually solitary, or, if more, the lateral ones not overtopping the terminal one. Involucral scales subulate. Florets yellow.—Damp places, rare. P. VI. VII. E. S.

24. (5.) Cineraria *Linn.*

1. *C. palustris* (L.); shaggy, *st. much branched* and corymbose above, *l.* broadly *lanceolate half-clasping,* lower l. *sinuate-dentate.*—*E. B.* 151.—St. 3 feet high, thick, hollow, leafy. Heads erect. Florets bright yellow.—Fen ditches, now become very scarce. P. VI. VII. E.

2. *C. campestris* (Retz.); shaggy, *st. simple, root l. oblong* nearly entire narrowed below, *stem l. lanceolate,* heads corymbose, involucre woolly below nearly glabrous in the upper half, fr. hispid. —*E. B.* 152.—St. 6—8 in. high, with small leaves. Heads erect, 1—6, in a simple corymb. Involucre often almost glabrous, pale. Florets yellow.—In very wet seasons (Mag. Nat. Hist. v. 88.) and near the sea this plant is often thrice as large with numerous larger heads and the lower l. dentate, when it is the *β. maritima* of authors.—Chalk downs; or (*β.*) on maritime rocks near Holyhead. P.? VI. E.

25. (4.) Senecio *Linn.*

* *Florets all tubular, or the marginal ones ligulate but revolute.*

1. *S. vulgaris* (L.); l. half-clasping pinnatifid: segments distant oblong obtuse and together with the rachis and auricles acutely and unequally toothed, lower l. narrowed into a stalk, heads in clustered racemes, *outer involucral scales very short* adpressed with black points, ray 0.—*E. B.* 747.—Smooth or woolly.

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St. 6—12 in. high, branching. Heads small; involucre oblong-conical glabrous, florets yellow, fr. with silky hairs.—*β. radiatus* (Koch); with a single row of ligulate minute revolute marginal florets.—Common. A. I.—XII. *Groundsel.*

2. *S. viscosus* (L.); *l.* deeply pinnatifid *viscid glandular-hairy*: segments oblong unequally toothed and lobed, heads in an irregular corymb, *involucre viscid outer scales half the length of the inner*, ray small revolute, *fr. glabrous.*—*E. B.* 32.—St. 1—2 feet high, much branched, spreading, viscid. Heads on long stalks, involucre cylindrical, florets yellow.—Waste ground on a calcareous soil. A. VII.—IX.

3. *S. sylvaticus* (L.); l. deeply pinnatifid downy, segments oblong unequally toothed, *heads corymbose*, involucre downy *outer scales very short*, ray small revolute, *fr. silky.*—*E. B.* 748.—St. 1—2 feet high, erect, more or less branched, hairy. L. narrower than in the last. Involucres conical, florets yellow.—*β. lividus*; upper l. distinctly auricled and clasping, lower without (?) auricles. *E. B.* 2515.—Dry and gravelly hills. A. VII.—IX.

** *Heads with spreading rays.*

*4. *S. squalidus* (L.); *l. pinnatifid* glabrous: *segments linear or oblong distant* toothed *irregular*, heads loosely corymbose, involucre glabrous, *outer scales few and small*, fr. silky.—*E. B.* 600.—St. much branched, leafy, smooth. L. sessile, often auricled, deeply and irregularly lobed. Heads few, broad. Outer involucral scales very small and sometimes very few. St. with many awlshaped scattered bracts below the heads. Florets yellow.—Walls at Oxford and Bideford, Devon. A. VI.—X. E.

5. *S. erucifolius* (L.); *l. pinnatifid* margins somewhat revolute downy beneath the lower ones stalked, *segments linear* the lowermost smallest entire and clasping the stem, *outer involucral scales half as long as the inner; fr. all silky.*—*E. B.* 574. *S. tenuifolius* Sm.—Root creeping. St. erect, 2 feet high, angular, furrowed, somewhat cottony, simple. Lower l. oblong-ovate deeply pinnatifid, the segments often linear downy on both surfaces but particularly beneath. Fr. all equally provided with persistent pappus. Florets yellow.—Calcareous soils. P. VII. VIII.

6. *S. Jacobæa* (L.); *lower l. oblong-obovate attenuated below lyrate-pinnatifid* stalked, stem l. sessile bipinnatifid: segments spreading oblong deeply and irregularly toothed and cut lowermost much divided clasping, outer involucral scales scattered few lax *fr. hairy those of the ray* glabrous.—*E. B.* 1130.—Root fleshy. St. 2—3 feet high, smooth, striated, branched, leafy. Corymb with erect branches. L. glabrous. Fr. of the ray quite glabrous, the pappus deciduous. Florets yellow.—Waste ground. P. VII.—IX. *Ragwort.*

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7. *S. aquaticus* (Huds.); *lower l.* stalked *crenate or dentate obovate or oblong* slightly produced at the base *undivided or sub-lyrate* obtuse, upper l. lyrate or pinnately cut: segments oblong or linear, st. round corymbosely branched, *fr. all glabrous* "submuricate."—*E. B.* 1131.—St. erect, 1—4 feet high, simple or branched in the upper half, branches ascending. Terminal lobe of the lower l. rounded below and narrowed into its stalk.—*β. major*; l. lyrate, terminal lobe truncate or subcordate below, segments subspathulate, fr. all glabrous and smooth. St. erect, with numerous branches. Terminal lobe of the lower l. remarkably truncate and scarcely decurrent at the base. *S. erraticus* Bert. ?—In marshy places. P. VII. VIII.

8. *S. paludosus* (L.); *l.* sessile elongate-lanceolate tapering *sharply serrate cottony beneath*, st. straight hollow, corymbs terminal.—*E. B.* 650.—St. 4—6 feet high, somewhat woolly. Florets yellow, of the ray narrow 13—16.—Fen ditches, very rare. P. V.—VII. E.

9. *S. saracenicus* (L.); *l.* sessile lanceolate acute *glabrous irregularly serrate*: teeth small incurved, st. straight solid, corymbs terminal, ray of 6—7 florets.—*E. B.* 2211.—St. 3—5 feet high, smooth. L. broad. Corymb many-headed. Florets yellow.—Watery places, local. P. VIII.

Tribe IV. *Cynareæ.*

Style of the hermaphrodite florets nodosely thickened above and often with a bunch of hairs at the knot, its branches united or free downy externally. Stigmatic lines reaching to the apex of the branches and there confluent.

Section 1. *CARLINEÆ.* Heads many-flowered, never dicœcious. Involucral scales in many rows, distinct, often spinous. Filaments distinct, naked. Fr. mostly villose. Pappus in 1—2 rows, not surrounded by an elevated margin.

26. Saussurea *DeCand.*

1. *S. alpina* (L.); l. nearly glabrous above cottony beneath, lower ones ovate lanceolate, upper sessile lanceolate, all distantly toothed, heads few in a dense corymb, involucre subcylindrical with adpressed hairy scales.—*E. B.* 599.—St. 3—12 in. high, erect, downy, simple, terminating in a small corymb of heads with pinkish florets and purple anthers. Fr. glabrous.—In alpine situations. P. VIII.

27. Carlina *Linn.*

1. *C. vulgaris* (L.); st. corymbose 1—many-headed, l. oblong-lanceolate sinuate spinous, outer scales of the involucre bipin-

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natifid spinous, inner linear-lanceolate attenuated acute ciliated in the lower half, bracts shorter than the heads.—*E. B.* 1144. —St. 6—12 in. high, usually cottony, leafy. Root l. lanceolate or linear-lanceolate. Under side of the l. and involucral scales often cottony. Heads large, inner involucral scales cream-coloured, florets red, anth. yellow.—Dry sandy heaths. B. VII.—X.

Section 2. *CENTAUREÆ.* Heads many-flowered, discoidal, outer row of florets usually barren enlarged and irregular. Involucre of many rows. Filaments distinct. Pappus in many rows of different lengths, second row longest, setaceo-pilose, placed within the margin which surrounds the epigynous disk, rarely 0.

28. CENTAUREA *Linn.*

* *Involucral scales with a scarious pectinated not decurrent appendage.*

1. *C. Jacea* (L.); *involucral appendages torn* the outer ones pinnatifid, heads radiant, *pappus* 0, l. linear-lanceolate lower ones broader and toothed.—*E. B.* 1678.—Lower l. ovate-lanceolate, stalked, toothed. Involucre pale brown, few outermost scales with appendages deeply jagged in a pinnatifid manner, few innermost entire, the rest irregularly jagged. I have seen no native specimens.—Very rare. Sussex. *Borrer.* Angusshire and Belfast. *Hooker.* P. VIII. IX.

2. *C. nigra* (L.); *involucral appendages erect ovate-attenuate pectinated, teeth divaricated capillary* twice as long as the breadth of the appendage, *pappus* very short *tufted*, l. lanceolate sinuate-dentate.—*E. B.* 278.—St. 1—2 feet high. L. scabrous. Involucre nearly black externally, appendages of the outermost scales smaller and narrower than the others; of the innermost row roundish, dark brown, membranous, jagged but not pectinated; all contracted just below the appendage. Heads not radiant, florets all fertile purple or rarely white.—*β. radiata*; outer row of florets barren and radiant. *C. nigrescens* Willd. not DC.—A radiant plant, which is common near Bath, has its involucral appendages much more irregular, the outermost very small, succeeding rows broader and broader and about 3 innermost rows roundish and jagged irregularly, the teeth of the pectinated ones ascending, and the fr. nearly without pappus. In other respects it resembles *C. nigra.*—Meadows and pastures. P. VIII. IX. *Black Knapweed.*

** *Involucral scales lanceolate, their upper half with a somewhat scarious deeply toothed or fringed decurrent margin.*

3. *C. Cyanus* (L.); involucral scales erect adpressed deeply toothed, pappus as long as the fruit, *l. linear-lanceolate*, the

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lowermost toothed or pinnatifid.—*E. B.* 277.—St. 1—3 feet high, loosely cottony, leafy. L. slightly cottony above, densely beneath. Involucre greenish-yellow, scales often tinged with purple in their upper half, margins brown decurrent with whitish teeth. Heads with large radiant *blue flowers*, disk purple.—Cornfields. A. VI.—VIII. *Corn Bluebottle.*

4. *C. Scabiosa* (L.); involucral scales erect adpressed pectinated: teeth ascending setaceous, pappus as long as the fruit, *l. pinnatifid* roughish, segments lobed with callous points.—*E. B.* 56.—St. 2—3 feet high, rough, furrowed. L. hispid, lobes of the upper ones entire. Heads on long naked stalks, solitary. Involucres usually rather woolly; scales pale, blunt, with dark acute membranous pectinated decurrent appendages, teeth pale. Florets purple, outer row radiant or 0.—Fields and hedges. P. VII.—IX. *Great Knapweed.*

**** Involucral scales horny at the end with palmate or pinnate spines.*

*5. *C. solstitialis* (L.); *involucral scales woolly* palmately spinous, *central spine* of the intermediate scales *very long* needle-shaped, inner ones with a roundish scarious appendage, *heads terminal* solitary, st. winged with the decurrent bases of the linear-lanceolate *entire* hoary *leaves*, root l. lyrate.—*E. B.* 243.—St. 1—2 feet high, branched, spreading. Involucres sometimes glabrous. Florets yellow.—Cultivated land, probably introduced. A. VII.—IX. *Yellow Star-thistle.* E.

6. *C. Calcitrapa* (L.); *involucral scales glabrous* palmately spinous, *central spine strong channeled*, innermost scales with a scarious obtuse appendage, *heads lateral* sessile solitary, pappus obsolete, *l.* deeply *pinnatifid*, lobes of the root l. lanceolate toothed, of the stem l. linear.—*E. B.* 125.—St. furrowed, slightly hairy, branched, spreading, about a foot high. Florets purplish.—Gravelly and sandy places. A. VII. VIII. *Common Star-thistle.* E.

7. *C. Isnardi* (L.); involucral scales palmately spinous, *spines nearly equal* 3—5, innermost scales with a scarious obtuse lanceolate or slightly spathulate appendage, *heads terminal* solitary, pappus of all the fruits in several rows, *l. linear* coarsely toothed narrowed below sessile rough, lower ones (and those of the primary stem?) broader inciso-dentate with clasping auricles.—*E. B.* 2256.—St. procumbent, with long slender simple leafy branches each terminated by a solitary head. L. mostly linear, slightly toothed or entire.—Florets purple.—Distinguished from *C. aspera* only by its simple upper leaves.—Guernsey. P. VII. VIII. O.

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Section 3. *CARDUINEÆ*. Heads many-flowered, florets all tubular. Involucre in many rows of distinct spinous scales. Filaments distinct. Pappus in many rows, not surrounded by a prominent margin.

29. ARCTIUM *Linn.*

1. ***A. Lappa*** (L.); ***heads subcorymbose,*** involucres nearly glabrous with the inner scales subulate gradually attenuated into a mucronate point longer than the florets.—***Lappa major*** Koch.—St. much branched, 3—4 feet high, leafy. L. cordate ovate, the lowermost very large. Involucral ***scales all yellowish-green***; a few of the innermost narrowed very gradually into a short rigid straight point, the margins scarious not serrulate. Scarcely any trace of a web unless on the very youngest heads.—There is some confusion in the figures in *E. B.* and therefore I do not quote them. Waste places, not very common. B. VII. VIII. ***Great Burdock.***

2. ***A. minus*** (Schkuhr); ***heads racemose,*** involucral scales connected by a cobweb-like down, ***inner ones coloured*** subulate rather abruptly mucronate shorter than the florets.—*Lappa* Koch.—L. rather smaller than in the last. Heads smaller; involucral scales nearly all tinged with purple, many of the inner ones without hooks but narrowed rather suddenly into an almost straight rigid point, margins minutely serrulate. Web often very slight.—Waste places. B. VII. VIII. ***Lesser Burdock.***

30. ONOPORDUM *Linn.*

1. *O. Acanthium* (L.); st. erect many-headed, l. elliptic-oblong woolly on both sides sinuate spinous decurrent, outer involucral scales lanceolate-subulate recurved and spreading.—*E. B.* 977.—St. 4—5 feet high, woolly, with broad spinous wings, branched. Involucre nearly globose, large, somewhat cottony; scales fringed with minute spinous teeth. Florets purple.—Waste ground. B. VIII. ***Cotton Thistle.*** E. S.

31. CARDUUS *Linn.*

* ***Pappus rough.*** Carduus *Sm., D.C., Koch.*

1. ***C. nutans*** (L.); l. decurrent spinous lanceolate sinuated, ***heads solitary drooping*** hemispherical, ***involucral scales lanceolate*** cottony ***outer ones reflexed.***—*E. B.* 1112.—St. 2 feet high, erect, angular, furrowed, cottony, winged. L. hairy on both sides, woolly on the veins beneath, pinnatifid with 3-lobed wavy spinose-ciliated segments terminated by strong spines. Heads large, florets purple. Intermediate involucral scales contracted above the base and then lanceolate.—Waste ground. B. V.—VIII. ***Musk Thistle.***

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2. *C. acanthoides* (L.); l. decurrent spinose-ciliated lanceolate glabrous or cottony beneath deeply pinnatifid: lobes trifid and dentate, *heads* solitary or aggregated *roundish, involucral scales linear-subulate* erect or ascending.—*E. B.* 973.—St. about 3 feet high.—L. broadly lanceolate nearly glabrous beneath, heads usually solitary and stalked. *C. acanthoides* L.—*β. crispus*; l. narrower woolly beneath, heads usually aggregate. *C. crispus* L.—I find no permanent character by which to separate these plants.—Dry banks and waste places. *β.* is the more common variety. B.? VI.—VIII.

3. *C. tenuiflorus* (Curt.); l. decurrent sinuate spinous broadly lanceolate cottony beneath: segments ovate lobed, heads numerous aggregate sessile subcylindrical, involucral scales ovate-lanceolate attenuated.—*E. B.* 412.—St. about 3 feet high, slightly branched, with broad deeply lobed spinous wings. L. deeply sinuate or pinnatifid. Involucres nearly glabrous. Florets pink.—Sandy places near the sea. B.? VI.—VIII.

** *Pappus feathery.* Cnicus *Linn., Sm.* Cirsium *Koch, DC.*

† L. spinous-hairy above, fl. purple.

4. *C. lanceolatus* (L.); *l. decurrent* white and cottony beneath pinnatifid: lobes bifid with lanceolate entire segments each terminated by a strong spine, *involucres ovate* shaggy, scales lanceolate spinous spreading.—*E. B.* 107.—St. 3—4 feet high, erect, furrowed, hairy, with strong spinous wings. Heads terminal, solitary or 2 or 3 together, large; florets purple.—Waste ground. B. VII. VIII. *Spear Thistle.*

5. *C. eriophorus* (L.); *l. half clasping not decurrent* white and cottony beneath deeply pinnatifid: lobes bifid the segments lanceolate entire alternately pointing upwards and downwards and each terminated by a strong spine, *involucres globose* shaggy, scales lanceolate with a long linear spinous-tipped reflexed point.—*E. B.* 386.—St. 3—4 feet high, much branched, furrowed, hairy. Root l. 1—2 feet long, linear, with long divergent lobes which form double rows in a very regular manner. Stem l. similar but smaller. Heads very large; involucre covered with a dense white web; florets purple. A remarkably conspicuous plant.—Waste ground on a limestone soil. B. VIII. *Woolly-headed Thistle.*

†† Leaves not spinous-hairy above.

6. *C. arvensis* (Curt.); heads subdiœcious, *l. subsessile oblong-lanceolate* pinnatifid spinous wavy, involucres ovate subglabrous: *scales broadly lanceolate adpressed* terminating in a short spreading spine, root creeping.—*E. B.* 975.—St. erect, 3—4 feet high, leafy, angular, corymbose above. L. very spinous, sessile or very slightly decurrent.—*β. latifolius*; l. glabrous oblong broad sinu-

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ately lobed slightly wavy decurrent with an interrupted wavy spinous wing, uppermost nearly sessile, lobes obtuse fringed with strong equal spines, in other respects like the type. I know not where to place this plant except as a remarkable variety of *C. arvensis*. Is it a distinct species?—Fields and road-sides. *β.* Croxall, Derbyshire. P. VII. *β.* IX. *Creeping Thistle.*

7. *C. palustris* (L.); *l. decurrent* lanceolate deeply pinnatifid spinose, involucres ovate clustered: *scales ovate-lanceolate* adpressed mucronate.—*E. B.* 974.—St. solitary, erect, 3—5 feet high, wandlike, with wavy spinose wings throughout, slightly branched. Heads in a terminal cluster. Florets purple or white. Under side of the l. usually cottony. Involucre with a slight web.—Wet meadows. A. VII. VIII.

8. *C. Forsteri*; *l. slightly decurrent lanceolate all pinnatifid* spinose cottony beneath: lobes bifid or slightly palmate, involucres 2 or 3 together ovate terminating the stem and branches slightly cottony: scales lanceolate attenuated adpressed mucronate, *cæspitose.*—*Cnicus Forsteri* Sm.—St. 3—4 feet high, nearly simple or panicled above, angular, furrowed, not winged, slightly cottony, several together from the crown of the root, not stoloniferous. L. half clasping, lower tapering into a footstalk; intermediate narrowed downwards, sessile, a little decurrent; upper gradually smaller; all cottony beneath and slightly pilose above, their lobes with prominent lanceolate segments often accompanied by several smaller ones, or shallow with 2 rather prominent points. A specimen from the county of Mayo agrees with this plant in all points except that the l. are not at all decurrent.—Boggy places. P. VII. VIII. E. I.

9. *C. pratensis* (Huds.); *l. mostly radical lanceolate wavy or lobed* pilose above cottony beneath fringed with minute prickles, *stem l. not decurrent* few clasping, involucres globose solitary terminal slightly cottony: scales lanceolate-attenuated adpressed mucronate, *root stoloniferous.*—*E. B.* 177.—St. 1—2 feet high, cottony, usually quite simple and single-headed, leafless in the upper half with a few scaly bracts, springing singly from the suckers. L. broad, soft, sinuate-dentate, rarely with small 2—3-fid lobes, fringed with small but unequal prickles, lower l. stalked. Occasionally there are 2 or 3 fl. on a stem, but the stem l. are always soft and wavy at the edges, not pinnatifid as in the preceding.—This is the *Cir. anglicum* (Lam.) *DC., Koch*, but Hudson appears to have been its first describer in modern times.—Boggy meadows. P. VI.—VIII.

10. *C. tuberosus* (L.); l. lanceolate deeply pinnatifid pilose above hairy or slightly cottony beneath fringed with minute prickles, *stem l. sessile not decurrent*: lobes 2—3-fid, involucres ovate terminal 1—3 together slightly cottony: *scales lanceolate*

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mucronate adpressed, *root of elliptical tapering fleshy fibres.*—*E. B.* 2562. *Cir. bulbosum* DC., Koch.—St. 2 feet high, erect, round, hairy, leafless above the middle with a few minute bracts. Lower l. stalked, stem l. nearly or quite sessile.—Great-ridge Wood near Boyton, Wilts. P. VIII. IX. E.

11. *C. acaulis* (L.); *l. glabrous* radical lanceolate pinnatifid: lobes subtrifid spinose, involucre ovate glabrous nearly sessile mostly solitary: outer scales ovate inner ones gradually longer adpressed, *root with filiform fibres.*—*E. B.* 161. *St.* 24. 16.—St. generally wanting, sometimes 3—4 in. long and leafy. L. all stalked, glabrous except a few hairs upon the ribs beneath. Heads very large, florets crimson.—Dry calcareous pastures. P. VII.—IX.

12. *C. heterophyllus* (L.); *l. clasping not decurrent* glabrous above *white and downy beneath lanceolate serrated fringed with minute prickles*, root l. with long stalks clasping at the base, involucres ovate slightly downy: scales ovate or lanceolate acuminate adpressed.—*E. B.* 675.—Root creeping. St. 3—4 feet high, furrowed, cottony, slightly branched above. Heads large and handsome. L. very large, undivided.—Moist mountain pastures. P. VII. VIII. E. S.

Section 4. *SILYBEÆ.* Filaments monadelphous. Pappus in many rows.

32. Silybum *Gaert.*

1. *S. marianum* (Gaert.). The only species.—*E. B.* 976.—St. 3—4 feet high, ribbed and furrowed. L. very large, oblong-lanceolate, wavy, clasping; radical l. pinnatifid, usually variegated with green and milk-white. Heads large, globose. Involucral scales closely adpressed below. Florets purple, their tube very long.—Waste places. B. VI. VII.

Section 5. *SERRATULEÆ.* Heads many-flowered; florets all tubular, hermaphrodite or dioecious, the external row sometimes female. Involucre of many rows of distinct scales. Filaments distinct. Pappus in many rows of different lengths, inner row longest, pilose or plumose, surrounded by a margin.

33. Serratula *Linn.*

1. *S. tinctoria* (L.); l. with bristly serratures pinnatifid somewhat lyrate, heads oblong corymbose, involucral scales ovate adpressed, inner ones linear coloured.—*E. B.* 38. *St.* 3. 16.—St. 2—3 feet high, straight, erect, angular, branched above. L. variously pinnatifid or lyrate. Florets purple.—Groves and thickets. P. VIII. *Saw-wort.* E. S.

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** *LIGULIFLORÆ.* All the florets hermaphrodite, ligulate.

Tribe V. *Cichoraceæ.*

Style cylindrical above and, with its long obtuse branches, equally pubescent. Stigmatic lines prominent, narrow, terminating below the middle of the branches.

Section 1. *LAPSANEÆ.* Receptacle without scales. Pappus none.

34. Lapsana *Linn.*

1. *L. communis* (L.); l. dentate or lobed stalked, lower l. lyrate, involucres glabrous angular, st. panicled.—*E. B.* 844.—St. and l. hispid or nearly glabrous. St. 1—3 feet high, branched above. Heads small, with yellow florets, in terminal panicles with small subulate bracts at the subdivisions. Involucre of the fruit erect. —Waste and cultivated land. A. VII. VIII. *Nipplewort.*

Section 2. *HYOSERIDEÆ.* Receptacle without scales. Pappus like a crown, of many entire broad scales.

35. Arnoseris *Gaert.*

1. *A. pusilla* (Gaert.). The only species.—*Lapsana* Sm. *E. B.* 95.—St. 3—8 in. high, swelling and hollow upwards, leafless, with a minute bract at the base of each branch. Each successive branch overtopping its predecessor and gradually thickening up to the solitary small terminal head of yellow florets. Involucre connivent over the fruit when its scales become remarkably keeled. Receptacle alveolate towards the margins. Fr. small obovate, attenuated below, with 5 angles. L. radical, oblong, toothed.—Gravelly places, rare. A. VI.—VIII. E. S.

36. Cichorium *Linn.*

1. *C. Intybus* (L.); lower l. runcinate hispid on the keel, upper l. oblong or lanceolate clasping entire, heads axillary in pairs nearly sessile.—*E. B.* 539. *St.* 6. 15.—St. 2—3 feet high, bristly, alternately branched. Heads numerous, of bright blue handsome florets. Floral l. lanceolate from a broad clasping base.—Banks on a gravelly or chalky soil. P. VII. VIII. *Wild Succory.*

Section 3. *HYPOCHŒRIDEÆ.* Receptacle scaly. Pappus feathery.

37. Hypochœris *Linn.*

1. *H. glabra* (L.); st. branched leafless glabrous, *l. oblong dentate-sinuate,* involucre glabrous equalling the florets.—*E. B.* 575.—St. 3—10 in. high, branched, scaly, each branch terminating in a small solitary head. L. spreading in a circle on the ground, glabrous, except a few scattered hairs. Outer row of

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fruits destitute of a beak, the rest with a long beak.—β. *Balbisii* (Bab.); all the fruits with long beaks. *H. Balbisii* (Lois.) *DC.* —The beak of the outer row of fruits is variable.—Sandy and gravelly places. β. in Kent and Salop. A. VII. VIII. E. S.

2. *H. radicata* (L.); st. branched leafless glabrous, *l. runcinate obtuse*, involucre shorter than the florets.—*E. B.* 831.—St. about a foot high, branched, scaly, each branch terminating in a rather large solitary head. L. spreading upon the ground, *scabrous*. Stalks slightly thickened beneath the heads. Fr. all beaked.—Waste ground. P.? VII.

38. Achyrophorus *Scop.*

1. *A. maculatus* (Scop.); st. simple or slightly branched almost leafless, l. ovate-oblong undivided toothed pilose, involucral scales bristly on the back.—*E. B.* 225.—St. about a foot high, stout, slightly hairy. L. often all radical. Heads large, florets deep yellow.—Chalky and limestone hills. P. VII. VIII. E.

Section 4. *SCORZONEREÆ.* Receptacle without scales. Pappus feathery or on the exterior fruits scaly.

39. Thrincia *Roth.*

1. *T. hirta* (DC); l. lanceolate sinuate-dentate or entire hispid or hairy with forked or simple hairs, stalks simple pilose below, involucre glabrous.—*E. B.* 555.—L. all radical, sometimes nearly or quite entire, occasionally runcinate. Stalks quite simple, longer than the leaves, somewhat hairy in their lower half. Involucral scales downy on the margins at the apex. Root premorse.—β. *dubia*; l. almost or quite entire very hairy, stalks hairy particularly below, *involucral scales hairy*. Probably a distinct species.—Gravelly places. β. Grosnez, Jersey. P. VII.—IX.

40. Leontodon *Linn.*

1. *L. hispidum* (L.); l. radical oblong-lanceolate runcinate hispid with forked hairs, stalks simple naked or with 1 or 2 minute scales thickened upwards hispid, involucre hairy.—*Apargia* Sm. *E. B.* 554. *L. hastilis* Koch.—L. all radical with regular spreading or reflexed narrow teeth. Stalks erect, longer than the leaves. Head drooping in bud afterwards erect. Florets glandular at the end. Fr. muricated.—Mr. J. Ball found a plant upon the mountains south of Glen Cree, Wicklow, which appeared to be closely allied to the *L. alpinum* (Jacq.) but not now having access to the specimen I am unable to describe it. See *Ann. Nat. Hist.* ii. 29.—Meadows and pastures. P. VI.—IX.

41. Oporinia *Don.*

1. *O. autumnalis* (Don); l. radical linear-lanceolate toothed or

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pinnatifid nearly glabrous, stalk branched scaly and thickened upwards, involucre glabrous or hairy.—*Apargia* Sm. *E. B.* 830. *Leontodon* Koch.—L. all radical, tapering at the base, often with long linear spreading segments, usually somewhat hairy particularly on the midrib beneath. Involucre nearly always hairy. Pappus brownish.—*β. taraxaci*; l. glabrous, stalk often simple, involucre shaggy with greenish-black hairs. *Apargia taraxaci* Sm. *E. B.* 1109. not Willd.—I gathered in the Isle of Skye a variety of the typical plant, of very large size, with the involucre densely clothed as in *β.*—Meadows and pastures. *β.* on lofty mountains. P. VIII.

42. Tragopogon *Linn.*

1. *T. minor* (Fries); *involucre twice as long as the florets*, peduncles slightly thickened at the very summit, l. tapering into a long slender point from a dilated base.—*T. major* Hook. not Jacq. —St. 2 feet high, branched, erect. L. clasping the stem, gradually tapering into a very long acuminated point. Involucre in 2 rows. Florets yellow, truncate, 5-toothed. Fr. of the marginal florets angular and striated, the angles squamosely toothed, the interstices tubercular. The credit of determining this plant belongs to Mr. Leighton.—Meadows and pastures. B.? VI. VII. *Smaller Goat's-beard.* E. S.

2. *T. pratensis* (L.); *involucre equalling or shorter than the florets*, peduncles slightly thickened at the very summit, l. linear keeled dilated at the base.—*E. B.* 434.—St. 1½—2 feet high, branched, erect. L. clasping the stem, narrowing upwards and terminating in a very long linear-acuminate point. Involucre in 2 rows. Florets yellow, truncate, with 5 teeth. There are 2 forms of this plant, (a) with the involucre equalling the florets, and the fruit of the marginal florets obsoletely striated and squamosely-scabrous throughout; the other (b) with the involucre rather shorter than the florets and the marginal fruits (in my specimen) yellow slightly furrowed and quite smooth.—Meadows and pastures, less frequent than the preceding. B.? VI. *Field Goat's-beard.*

†3. *T. porrifolius* (L.); *involucre longer than the florets, peduncles much thickened upwards*, l. tapering slightly dilated just above the base.—*E. B.* 638.—St. 3—4 feet high, erect, branched. L. slightly broader just above the base then gradually narrowing to an acute point. Heads twice as large as in the two preceding. Involucres usually ¼ longer than the florets, but sometimes only equalling them. Florets purple. Marginal fruits squamosely-tubercular throughout but particularly on the ribs. —*T. major* is probably only a yellow-flowered variety of this, as stated by Fries, but it has not been found in Britain.—Moist pastures near rivers. B. VI. *Salsify.* E. S.

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43. Picris *Linn.*

1. *P. hieracioides* (L.); rough with forked and hooked bristles, l. lanceolate dentate or sinuated, upper l. somewhat clasping, heads solitary terminating the stem and branches, outer involucral scales lax oblong bristly on the keel glabrous on the margin, fr. constricted just below the pappus.—*E. B.* 196.—St. 1—3 feet high, branched above, rather corymbose, very rough. Florets yellow.—Dry banks. B. VII.—IX. E. I.

44. Helminthia *Juss.*

1. *H. echioides* (Gaert.); hispid with rigid 3-fid and hooked hairs from tubercular bases, st. erect, involucral bracts 5 ovate-cordate.—*E. B.* 972.—St. 2—3 feet high, branched, covered, as well as the leaves and involucre, with strong prickles springing from white tubercles and with 3 minute hooks at the apex glochidate). L. clasping.—Dry banks. A. VII.—IX. *Bristly Ox-tongue.*

Section 5. *LACTUCEÆ.* Receptacle generally without scales. Pappus filiform, very soft, deciduous, never feathery nor dilated at the base, silvery.

45. Lactuca *Linn.*

* *Beak elongated.*

1. *L. saligna* (L.); l. with a prickly keel, upper *l. linear entire acuminate* with a sagittate base, lower l. pinnatifid, *beak white twice as long as* the fruit.—*E. B.* 707.—St. 2 feet high, slender, wavy, slightly branched. Heads in small alternate tufts forming long clusters. Florets yellow.—Chalky places and near the sea. B. VII. VIII. *Least Lettuce.* E.

2. *L. virosa* (L.); *l.* with a prickly keel *horizontal oblong* auricled and clasping *mucronate-dentate or sinuated, beak white equalling the black fruit.—E. B.* 1957.—St. 2—4 feet high, leafy, branched above, panicled. Heads scattered with numerous cordate acute bracts. Plant full of acrid milky juice.—Dry banks. B. VII. VIII. *Acrid Lettuce.* E. S.

3. *L. Scariola* (L.); *l.* with a prickly keel *perpendicular* arrow-shaped at the base and clasping *sinuate, beak white equalling the pale fruit.—E. B.* 268.—St. 2—5 feet high, leafy, panicled. Heads scattered with numerous heartshaped bracts. Juice rather less acrid than in the preceding. Waste places, rare. B. VII. VIII. *Prickly Lettuce.* E.

** *Beak short.*

4. *L. muralis* (DC.); florets 5, l. with a smooth keel lyrate-runcinate angled and toothed clasping: terminal lobe largest angled, *beak much shorter than the fruit,* heads panicled.—*Pre-*

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nanthes Sm. *E. B.* 457. *Phœnixopus* Koch.—St. erect, a foot high, smooth, round, hollow. Florets bright yellow. Fruit black. —Banks and old walls. A. ? (P. *Sm.*) VII. E. I.

46. TARAXACUM *Juss.*

1. *T. officinale* (Wigg.); l. runcinate glabrous toothed, fr. linear-obovate blunt and squamosely muricated at the summit longitudinally striated with a long beak.—Stalks single-headed, radical. Florets yellow. L. all radical, very variable. The following varieties may be noticed since they are considered as species by DeCandolle, but they are quite connected by intermediate forms.—1. Outer involucral scales reflexed or patent.—*α. genuinum*; *outer scales linear deflexed*, fr. yellow its upper half muricated, glabrous or woolly at the crown of the root, l. runcinate broad. *Leontodon taraxacum* Sm. *E. B.* 510.—*β. T. lævigatum* (DC.); *outer scales erecto-patent ovate*, fr. reddish-yellow muricated at the summit, beak with a thickened and coloured base, l. runcinate-pinnatifid with unequal teeth.—*γ. T. erythrospermum* (DC.); *outer scales lanceolate adpressed or patent*, fr. bright red muricated at the summit, beak with a thickened and coloured base, l. runcinate-pinnatifid with unequal teeth and intermediate smaller ones. *T. lævigatum* Bab. Lowermost l. sometimes obovate and dentate not runcinate when it becomes *T. obovatum* DC.—2. Outer scales adpressed.—*δ. palustre* (Sm.); outer scales ovate-acuminate, fr. pale yellow muricated at the summit, l. oblong and entire sinuate-dentate or runcinate; or outer scales ovate-lanceolate or lanceolate. *E. B.* 553.—Very common, *γ.* in dry places, *δ.* in bogs. P. III.—X. *Dandelion.*

47. BARKHAUSIA *Moench.*

1. *B. taraxacifolia* (DC.); l. rough runcinate-pinnatifid, heads erect, *involucre* bristly and downy *covering half the pappus* its outer scales ovate-lanceolate with a membranous margin, bracts herbaceous, *fr. all equally beaked.*—Root fusiform. St. 1—2 feet high, hispid, angular, furrowed, purple below, at length branched, corymbose. L. mostly radical simple with retrorse teeth, or deeply pinnatifid with the terminal lobe large. Stem l. few, small, sessile, clasping, deeply pinnatifid and toothed. Unopened heads erect. Florets yellow, purple beneath. Fr. narrowing very gradually into a setaceous beak of about its own length, ribs rough.—Limestone districts. B. VI. VII. E.

2. *B. fœtida* (DC.); l. hairy runcinate-pinnatifid, unopened heads nodding, *involucre* hairy and downy *as long as the pappus* its outer scales lanceolate acute downy, *marginal fr. slightly beaked shorter than the involucre, central ones with long beaks equalling it.—E. B.* 406.—Root slender, fusiform. St. 6—12 in. high, hairy, round, branched. L. mostly radical, stem l. few

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small lanceolate deeply toothed at the base sessile. Heads solitary, terminal, on long simple stalks. Midrib of the involucral scales at length much thickened and hardened. Ribs of the fr. rough.—Chalky places, rare. B. VI. VII. E.

48. CREPIS *Linn.*

1. *C. pulchra* (L.); *outer involucral scales ovate* short adpressed, l. downy toothed, stem l. arrowshaped clasping; panicle corymbose, *fr. about as long as the pappus* obsoletely striated slightly attenuated upwards.—*E. B.* 2325.—St. erect, downy. Lower l. obovate runcinately toothed, stem l. small. Heads small, florets yellow, involucre at length thickened. Outer row of fruits often apparently without pappus.—"Hill of Turin near Forfar." *Mr. G. Don.* A. VI.—IX. S.

2. *C. virens* (L.); *outer involucral scales adpressed linear inner ones glabrous within,* l. lanceolate remotely dentate runcinate or pinnatifid, *uppermost l.* linear-arrowshaped clasping *with flat margins,* st. subcorymbose, *fr. shorter than the pappus* oblong slightly attenuated upwards with smooth ribs.—*C. tectorum* Sm. *E. B.* 1111. not *Linn.*—St. 1—3 feet high. L. very variable. Florets yellow. The true *C. tectorum* (L.) has revolute margins to its upper l., the inner side of the involucral scales downy, its fr. somewhat beaked and with scabrous ribs. It has not been found in Britain.—Common. A. VI.—IX.

3. *C. biennis* (L.); *outer iuvolucral scales oblong-linear lax inner downy within,* l. runcinate-pinnatifid hispid, uppermost l. lanceolate clasping dentate-pinnatifid, st. subcorymbose, fr. oblong slightly attenuated upwards with smooth ribs and about as long as the pappus.—*E. B.* 149. (excluding the fruit.)—St. 1—3 feet high, hispid, nearly leafless above, branched in a corymbose manner. Heads large, florets yellow. L. radical and extending half-way up the stem.—Chalky places, rare? B. VI. VII. E.

4. *C. succisæfolia* (Tausch); *involucral scales lanceolate-attenuated outer ones very short adpressed, l. entire* nearly glabrous oblong obtuse lower ones narrowed into a footstalk, *upper l.* sessile and *somewhat clasping,* st. corymbose, peduncles and involucres glandular-hairy, fr. much striated slightly narrowed upwards as long as the pappus which is shorter than the involucre.—*Hieracium molle* Sm. *E. B.* 2210.—St. erect, with few leaves, simple below. Heads few, florets yellow.—Woods in the north. P. VII. VIII. E. S.

5. *C. paludosa* (Moench); involucral scales lanceolate much attenuated glandular-pilose outer ones short, *l. ovate-oblong taper-pointed* runcinate-dentate narrowed into a footstalk glabrous, *upper l.* ovate-lanceolate *cordate* and clasping acute entire or dentate, st. subcorymbose, fr. striated scarcely narrowed upwards.—*Hieracium* Sm. *E. B.* 1094.—St. 2 feet high, leafy, simple,

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angular. L. large. Florets yellow. Separated from this genus, with which it does not agree well in habit, by many authors, and named *Aracium* (Neck.), on account of its 1-rowed rather rigid and brittle pappus.—Damp woods and shady places. P. VII.—IX.

49. SONCHUS *Linn.*

1. *S. oleraceus* (L.); l. undivided or pinnatifid toothed clasping: *auricles spreading arrowshaped, fr. longitudinally ribbed smooth*, st. branched, heads subumbellate, involucres glabrous.—*E. B.* 843.—St. 2—3 feet high. Florets yellow.—Common. A. VI.—VIII. *Sowthistle.*

2. *S. asper* (Hoffm.); l. undivided or pinnatifid sharply toothed clasping: *auricles rounded, fr. transversely rugose and longitudinally ribbed*, st. branched, heads subumbellate, involucres glabrous.—*E. B. S.* 2765, 2766.—St. 2—3 feet high. Florets yellow.—Common. A. VI.—VIII. *Sowthistle.*

3. *S. arvensis* (L.); l. lanceolate runcinate finely toothed cordate at the base, uppermost l. entire, *st. simple, heads corymbose, involucre and peduncles glandular-hairy*, fr. with transversely rugose ribs, root creeping.—*E. B.* 674.—St. 3—4 feet high, leafy. L. long, acute. Heads large, florets yellow.—Corn-fields. P. VIII. IX. *Corn Sowthistle.*

4. *S. palustris* (L.); l. linear-lanceolate "lower runcinate," *upper l. simple, all arrowshaped* spinosely-ciliated: auricles acute, *st. simple*, heads corymbose, involucre and peduncles glandular-hairy, fr. with finely-rugose ribs, *root without scions.*—*E. B.* 935.—St. 4—6 feet high, leafy. Florets lemon-coloured.—Marshes, very rare. P. VII. VIII. E. S.

50. MULGEDIUM *Cass.*

1. *M. alpinum* (Less.); l. glabrous lyrate arrowshaped at the base: terminal lobe large triangular-hastate acute, st. simple, heads racemose, bracts peduncles and involucres glandular-hairy, fr. oblong not attenuated with many ribs.—*Sonchus* L. *S. cæruleus* Sm. *E. B.* 2425.—St. 3 feet high, glabrous below, leafy. L. gradually smaller upwards, cordate on the barren shoots. Heads small, numerous. Florets blue. A remarkably handsome plant, and very distinct genus.—Clova Mountains. P. VIII. S.

Section 6. *HIERACEÆ.* Receptacle generally without scales. Pappus filiform, rigid, brittle, never feathery nor dilated at the base, at length brownish or yellowish.

51. HIERACIUM *Linn.*

* Pilosellæ. *Stem resembling a scape. Root premorse.*

1. *H. Pilosella* (L.); st. leafless single-headed, scions creep-

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ing, l. elliptic-lanceolate or lanceolate entire hairy above hoary beneath, involucral scales linear-lanceolate.—*E. B.* 1093.—Florets pale lemon-coloured with a red stripe on the back. Involucral scales in 2 rows, outer short, inner longer acuminate.—*β. peleterianum* (Gaud.); scions short, l. and involucres clothed with long silky hairs, l. lanceolate.—Dry banks. *β.* dry elevated hills. P. V.—VIII. *Mouse-ear Hawkweed.*

[2. *H. dubium* (L. ?); "l. elliptic-lanceolate obtuse nearly entire besprinkled with coarse hairs rather glaucous beneath, scions creeping elongated, stalks nearly smooth loosely corymbose, cal. bristly." *Smith.*—*E. B.* 2332.—"Stalk radical, 3—4-flowered."—Said to have been found in Westmoreland. P. VII.] E.

[3. *H. Auricula* (L. ?); "l. lanceolate acute nearly entire coarsely hairy green on both sides, scions scarcely so long as the leaves, stalks downy and hairy corymbose, cal. shaggy." *Smith.*—*E. B.* 2368.—Dale head, Grassmere, Westmoreland. *Huds.* P. VII.—It will be time enough to determine the correct nomenclature of this plant and the preceding when either of them is found in Britain.] E.

†4. *H. aurantiacum* (L.); *st. slightly leafy below* clothed with long slender hairs upper part and corymb with black glandular hairs intermixed with the slender simple ones, scions creeping, l. ovate-oblong acute entire with simple not stellate pubescence green beneath.—*E. B.* 1469.—Corymb dense, 2—10-flowered, thickly covered with black hairs and glands.—Hilly woods; a doubtful native, common in gardens. P. VI. VII. S.

** Pulmonareæ. *Stem more or less leafy. Root not premorse nor creeping.*

5. *H. alpinum* (L.); *st. usually single-headed,* l. lanceolate or elliptical narrowed into a footstalk entire or toothed, *stem l. one* or more, *involucre covered with long silky hairs*: scales scarcely at all membranous at the edges linear-attenuated, florets externally hairy.—*E. B.* 1110.—St. always (?) simple in the British plant, clothed with stellate pubescence and long slender hairs black at the base. L. obovate-spathulate; stem. l. linear or linear-lanceolate. Involucral scales acute, outer ones lax. Florets bright yellow. Fr. striated, rough. In the branched forms the peduncles are erect.—*β. Halleri* (Hook.); larger, radical l. toothed oblong-lanceolate or lanceolate, hairs on the involucre much less white. *H. villosum* E. B. 2379. (bad.)—Alpine rocks; *β.* the more common form. P. VII. VIII. E. S.

H. nigrescens (Willd.), which is closely allied to *H. alpinum* and to *H. diaphanum,* is stated on good authority to occur on the Clova Mountains. I am unacquainted with it, and know not to which of the above to join it or whether it is a distinct species.

6. *H. villosum* (L.); st. with 1 or few heads, l. oblong-lan-

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ceolate attenuated below, stem l. sessile, *upper l. ovate half clasping*, involucre covered with long silky hairs: *scales attenuate from an ovate base outer ones lax.*—L. st. and involucres with long silky yellowish hairs, mixed on the peduncles only, with stellate pubescence. St. simple or divided, with erect peduncles, and several leaves. *H. villosum* E. B. is a cultivated state of *H. alpinum* β. but the true plant is in Smith's Herb.—"Rocks near Loch Callater, north of Clova. Mr. T. Drummond." *Sm. Herb.*! "Loch na Gar. *Herb. Dalton.*" Mr. J. Ball. P. S.

7. *H. murorum* (L.); *st. bearing a single leaf, radical l.* numerous persistent ovate or *cordate with retroflexed teeth* at the base rounded obtuse or attenuated at the extremity hairy beneath stalked, heads corymbose, *involucre pubescent.*—*E. B.* 2082.—St. erect, 12—18 in. high, nearly naked. Branches of the corymb bent. This species and the 2 following are so closely allied that it would probably be better to consider them only as forms of one very variable species, but that must be determined by further observation. My friend Mr. J. Ball is preparing a paper upon this genus which will probably throw light upon these plants, and in the mean time I have thought it better almost exactly to follow Fries.—Rocks, walls and woods. P. VI.—VIII.

8. *H. diaphanum* (Fries); *st. bearing* 1 *or* 2 *leaves, radical l.* numerous persistent ovate-lanceolate *narrowed into a footstalk* entire and denticulate or with *teeth all pointing forwards*, st. simply branched or somewhat corymbose.—α. *pulmonarium*; st. subcorymbose, heads rather small, l. ovate-lanceolate, stem l. similar but smaller. "*H. pulmonarium* Sm." *Fr.*, but Smith's specimen figured at *E. B.* 2307. appears different.—β. *Lawsoni* (Fr.); st. forked with straight peduncles, heads larger, l. lanceolate or elliptical, stem l. much smaller. *H. Lawsoni* Sm. *E. B.* 2083. *H. Halleri* Hook. *Lond.* 215. This var. varies with elliptical entire denticulate l. or with them lanceolate and denticulate or with a few teeth; the petioles are variable in length but usually very silky. Fl. large cream-coloured. Distinguished from *H. murorum* by the l. narrowing downwards and their teeth, when present, ascending; from *H. sylvaticum* by its numerous radical and few stem l. and by habit in which it agrees with the preceding. Varying greatly in size and pubescence.—Mountainous countries. P. VII.

9. *H. sylvaticum* (Sm.); *st. with several l.*, radical l. few persistent, all oblong-lanceolate *narrowed into a footstalk* usually coarsely toothed *teeth all pointing upwards*, heads panicled, involucre pubescent—*E. B.* 2031. *H. vulgatum* Fr.—St. erect, leafy. True radical leaves 0 (?) but several l. closely placed near to the bottom of the stem; uppermost stem l. nearly or quite sessile but of the same form as the others.—β. *maculatum*

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(Hook.); l. ovate-lanceolate with strong teeth spotted with purple. *H. maculatum* Sm. *E. B.* 2121.—*γ. pictum*; "l. lanceolate, spotted and clouded with purple above. *H. pictum* Schleich." *Hook.*—Woods, banks and walls. P. VII. VIII.

10. *H. Lapeyrousii* (Froel. ?); *st.* clothed with hairs *leafy*, radical l. oblong-ovate or oblong-lanceolate with shaggy winged petioles persistent, *stem l. sessile clasping* ovate taper-pointed, all with small teeth or nearly entire hairy, corymbose heads and upper part of the stem glandular-hairy.—St. usually simple, 1—2 feet high, terminating in a corymb of few large heads; with scattered stellate pubescence intermixed with the hairs throughout, increasing in quantity upwards and densely covering the petioles and lower part of the involucre. Stem l. narrowing downwards to a rounded *somewhat enlarged truly clasping base*. Upper half of the l. often tinged with purple. Involucral scales scarcely at all membranous at the edges.—Teesdale. Garra Head, Antrim. *Mr. D. Moore.* P. VIII. E. I.

11. *H. cerinthoides* (L.); st. slightly hairy with few leaves, radical l. oblong-lanceolate with shaggy winged petioles persistent, *stem l. ovate-lanceolate* or ovate taper-pointed gradually narrowing quite to the base and half clasping, all nearly entire, heads few corymbose.—*E. B.* 2378.—I have seen only the imperfect specimens in Smith's and the Linn. Herb. which agree pretty well. L. much longer and narrower than in the preceding, stem l. not at all rounded nor enlarged at the base and only imperfectly clasping. I suspect that the *H. longifolium* (Schl.) is the same plant.—Highlands of Scotland. *Mr. G. Don.* P. VIII. S.

12. *H. amplexicaule* (L.); *glandular-hairy throughout*, st. leafy, radical l. elliptical-oblong with small teeth narrowed into a winged petiole, stem l. cordate acute sessile clasping lower toothed upper entire, heads corymbose.—*E. B. S.* 2690.—Remarkable for having its stem, leaves and involucres viscid with glandular hairs. Stem 1—2 feet high. Heads few. Fr. ribbed, not furrowed.—Clova Mountains and Cleish Castle. P. VII.—S.

13. *H. denticulatum* (Sm.); st. erect leafy panicled above, *peduncles and involucres glandular-hairy*, l. elliptic-lanceolate denticulate, *lower l. tapering into a footstalk* upper sessile ovate.—*E. B.* 2122.—St. 3 feet high, leafy throughout. Heads small numerous. Nearly allied to the next but probably distinguished by its lower l. having decided stalks. Fr. slightly furrowed and rough on my wild specimen, as I believe is also the case in the true plant cultivated in Mr. E. Forster's garden.—Woods in Scotland, very rare. P. VII. VIII. S.

14. *H. prenanthoides* (Vill.); st. erect leafy simple, *peduncles and involucres glandular-hairy, involucres* of few scales and *nearly*

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simple, l. all sessile clasping denticulate, *lower l. narrowed above the base*, upper ovate, lowest much narrowed downwards, radical evanescent, *fr. smooth* slightly ribbed.—*E. B.* 2235.—St. 2—3 feet high, leafy throughout. Heads small, numerous; involucres with scarcely more than one row of equal scales and a row of very much smaller ones at the base. Radical l. stalked? This does not exactly agree with the plant of Villars which has quite entire leaves.—River-sides in Scotland and Northumberland. P. VIII. E. S.

15. *H. inuloides* (Tausch!); st. erect leafy simple, *peduncles and involucres stellato-pubescent, involucres of numerous imbricated scales*: the lowermost lax and rather distant, l. all sessile the lowermost much narrowed downwards, *intermediate narrowed above their base*, uppermost ovate-lanceolate, radical evanescent, *fr. rough*.—St. 2—4 feet high, leafy throughout, hairy. Heads larger than those of *H. prenanthoides*; involucre of much more numerous scales, which decrease gradually in length, the lowermost descending on to the peduncle, slightly hairy and scarcely ever at all glandular; peduncles without hairs or glands. Fr. slightly ribbed. L. not clasping. My specimens agree well with those of Tausch published in his *Pl. Sel. Boh.*—Highland woods. Arroquhar. Oban. Fall of Foyers. P. VIII. S.

16. *H. sabaudum* (L.); st. erect panicled and branched above, l. ovate-lanceolate or lanceolate toothed, lower l. narrowed into a dilated petiole, *upper l. ovate with a cordate clasping base*, radical evanescent, *involucral scales* adpressed slightly *downy* towards their base nearly uniform in colour.—St. 2—3 feet high, leafy throughout, usually hairy particularly below. L. hairy. Fr. red, striated, rough. Involucral scales dark with the margins slightly paler.—Thickets and banks. P. VIII. IX. E.

17. *H. boreale* (Fries); st. erect scabrous leafy slightly branched and corymbose above, l. ovate-lanceolate or lanceolate sinuate-dentate or nearly entire lower ones narrowed into a dilated petiole, *upper l. sessile with a rounded base* uppermost small, radical evanescent, *involucral scales* adpressed in 3 regular rows *uniform in colour* with a slightly hispid keel.—*H. sabaudum* Sm. *E. B.* 349.—St. 1—2 feet high, hispid below. Corymb irregular. Peduncles and base of the involucre hoary with stellate pubescence and long hairs interspersed. Fr. dark brown or nearly black, slightly furrowed, rough.—Thickets. P. VIII. IX.—E. S.

18. *H. rigidum* ("Hartm." Fr.); st. erect scabrous leafy slightly branched and panicled above, *l. narrowed at both ends* ovate-lanceolate or lanceolate coarsely toothed in the middle, lowermost stalked evanescent, upper subsessile, *involucral scales* attenuated adpressed *with pale margins*.—*H. lævigatum* Koch, Bab.—St. 2 feet high, stout, branching slightly in the upper

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half, scabrous, somewhat hairy. Base of the involucre and slightly thickened scaly upper part of the peduncle hoary with stellate pubescence: scales more attenuated and less regular than in *H. boreale*. L. mostly with a few strong triangular or lanceolate teeth at about the middle, more or less hairy beneath. Fr. rough.—*β. angustifolium*; st. slender, l. lanceolate with 2 or 3 linear-lanceolate teeth on each side.—*γ. pictum*; st. simple corymbose, l. ovate-lanceolate, upper l. lanceolate or linear-lanceolate remotely denticulate sessile spotted and clouded with purple above, uppermost entire, heads few, few outermost involucral scales lax.—*H. lanceolatum* Tausch ! not Vill., *H. sabaudum β.* Winch !—St. 1½—2 feet high, slender, subdivided at the summit only or rarely with 1 or 2 simple branches above the middle. Upper part of the peduncle with a few scales, thickened, and as well as the base of the involucre, hoary with stellate pubescence. L. hairy beneath.—Walls and banks, *β.* mountainous districts. P. VI.—VIII. E. S.?

19. *H. umbellatum* (L.); st. erect nearly simple leafy corymbose above, *l. oblong-lanceolate or linear uniform* toothed or entire, lower l. narrowed into a dilated petiole, upper sessile, radical evanescent, *involucral scales with recurved points uniform in colour.*—*E. B.* 1771.—St. 2—3 feet high, leafy throughout, hairy or glabrous, upper l. narrowing gradually to the base. Fr. dark brown.—*β. Taylori*; st. erect simple slightly downy, l. lanceolate, lower l. attenuated below, upper with a somewhat rounded base.—St. 3—4 feet high, stout, erect, with a terminal corymb of rather large heads. Upper part of the stem, peduncles and involucre hoary with stellate pubescence but without hairs.—Thickets. *β.* Kenmare, Kerry. *Dr. Taylor.* P. VIII. IX.

Anomalous Genus. Order AMBROSIACEÆ *Link.*

52. Xanthium *Linn.*

*? 1. *X. strumarium* (L.); st. without spines, lower l. heart-shaped 3-lobed at the base coarsely dentate, beaks of the fr, 2 straight.—*E. B.* 2544.—Involucre of the fr. oval, downy.—Rich waste land, scarcely naturalized. A. VIII. IX.

Order XLVII. CAMPANULACEÆ.

Cal. superior 5-fid or entire. Cor. monopetalous, inserted on the calyx, 5-lobed, regular or irregular. Stam. inserted with the cor. and alternate with its lobes; anth. distinct or cohering, 2-celled, opening longitudinally. Fr. dry, capsular, opening by

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lateral fissures or valves at the apex, many-seeded. Embryo straight in the axis of fleshy albumen.

Tribe I. *LOBELIEÆ*. Odd segment of the cal. anterior. Cor. irregular. Anth. cohering. Style glabrous with a fringe of hairs below the stigma.

1. LOBELIA. Cal. 5-fid. Cor. irregular, tube split to the base on the upper side, limb 2-lipped 5-parted. Anth. 5, cohering. Stigma blunt, surrounded by a cupshaped fringe. Caps. 2—3-celled, opening at the end by 2—3 valves.

Tr. II. *CAMPANULEÆ*. Odd segment of the calyx posterior. Cor. regular. Anth. usually free. Style pubescent.

2. JASIONE. Cal. 5-fid. Cor. rotate with 5 long linear segments. *Anth. cohering* at their base. Style hairy, bifid. *Caps.* 2-celled, *opening by a large somewhat valvular pore at the end.*

3. PHYTEUMA. Cal. 5-parted. *Cor. rotate with* 5 *long linear segments. Anth. free*; filaments dilated at the base. Style hairy, 2—3-fid. Caps. 2—3-celled, bursting at the sides.

4. CAMPANULA. Cal. 5-parted. *Cor.* mostly bellshaped *with* 5 *broad* and shallow *segments.* Anth. free; filaments dilated at the base. Stigma 3—5-fid. *Caps.* not elongated, 3—5-celled, *opening by lateral pores outside the segments of the calyx.*

5. SPECULARIA. Cor. rotate. Caps. linear-oblong, prismatical, opening by lateral pores between the calycine segments. Otherwise like *Campanula.*

6. WAHLENBERGIA. Caps. half superior, 3-celled, opening by 3—5 valves within the calycine segments. Otherwise like *Campanula.*

Tribe I. *Lobelieæ.*

1. LOBELIA *Linn.*

1. *L. Dortmanna* (L.); l. linear entire of 2 longitudinal cells, st. simple nearly naked.—*E. B.* 140.—L. blunt, 1—2 in. long. St. 12—18 in. high. Fl. light blue, distant, in a simple raceme, slightly raised above the water, the rest of the plant submersed. —Lakes with a gravelly bottom. P. VII.

2. *L. urens* (L.); st. nearly upright, lower l. obovate or oblong slightly toothed, upper lanceolate serrate, fl. in long terminal racemes.—*E. B.* 953.—St. 12—18 in. high, leafy, branched, angular, roughish. Racemes erect, simple, lax. Fl. light blue.—Bushy places in Devonshire, very rare. P. VIII. IX. E.

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Tribe II. *Campanuleæ.*

2. JASIONE *Linn.*

1. *J. montana* (L.); root simple, l. bluntish oblong wavy, fl. stalked.—*E. B.* 882.—St. several from the crown of the root, 6 in. to 2 feet long, simple or branched, pilose, leafy below, bare and usually glabrous above. Fl. small, in terminal bracteated heads. Bracts glabrous or hairy. Calyx-segments linear-setaceous, glabrous. Cor. light blue.—Dry places. B. VII. *Sheep's Scabious.*

3. PHYTEUMA *Linn.*

1. *P. orbiculare* (L.); *heads of fl. globose of fr. oblong,* l. crenate-serrate, lowermost cordate-ovate stalked, upper ones linear-lanceolate sessile, outer bracts ovate-lanceolate attenuated, stigmas 3.—*E. B.* 142.—St. 12—18 in. high, each with 1 terminal head of blue flowers.—Chalky downs. P. VII. *Round-headed Rampion.* E.

2. *P. spicatum* (L.); *heads of fl. oblong of fruit elongated cylindrical,* lower l. cordate-ovate somewhat doubly serrate stalked, upper ones linear-lanceolate sessile, bracts linear, stigmas 2.—*E. B. S.* 2598.—St. 1—2 feet high, each with a solitary terminal head of cream-coloured flowers. Spike of fruit often 2—3 in. long.—Woods and thickets about Waldron, Sussex. P. VII. *Spiked Rampion.* E.

4. CAMPANULA *Linn.*

* *Caps. sessile, erect, pores at the base.*

1. *C. glomerata* (L.); l. minutely crenate-serrate lowermost stalked ovate-lanceolate generally cordate at the base, upper l. half clasping sessile ovate acute, *fl. sessile in* terminal and axillary clusters.—*E. B.* 90.—St. 6—18 in. high. Bracts ovate-acuminate, shorter than the large erect flowers. Cal. hoary with lanceolate segments. Cor. funnelshaped, large, deep blue, downy. L. often hoary beneath.—Dry pastures on limestone. P. VII. VIII. *Clustered Bell-flower.* E. S.

** *Caps. stalked, nodding, pores at the base.*

2. *C. latifolia* (L.); *l. ovate-lanceolate* acuminate *doubly serrate* hairy lower ones stalked, upper l. nearly sessile, fl. racemose, peduncles 1-flowered, cal.-segments lanceolate acuminate glabrous entire, st. erect slightly angular.—*E. B.* 302. *St.* 72. 3.—St. 3—4 feet high, simple, leafy. Cor. very large, deep blue, glabrous.—Woods and thickets in the north. P. VII. VIII. *Giant Bell-flower.*

3. *C. Trachelium* (L.); *l. coarsely doubly serrate* hispid *lower*

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ones cordate with long stalks, upper l. nearly sessile ovate or lanceolate acuminate, fl. racemose, peduncles 2—3-flowered, *cal.-segments* triangular-lanceolate entire erect, st. erect angular. —*E. B.* 12.—St. 2—3 feet high, mostly simple, leafy. Cor. truly bellshaped, large, deep blue.—Hedges and thickets, chiefly in the south. P. VII. VIII. *Nettle-leaved Bell-flower.*

4. *C. rapunculoides* (L.); *l. unequally crenate-serrate* scabrous lower ones cordate with long stalks, upper l. sessile lanceolate, *fl.* racemose *unilateral*, peduncles 1-flowered, *cal.-segments* linear-lanceolate entire *at length reflexed*, st. erect slightly angular, root creeping.—*E. B.* 1369.—St. 2 feet high, simple, leafy. Cor. pale blue.—Woods and hedges, very rare. P. VII. VIII. E. S.

5. *C. rotundifolia* (L.); *radical l. cordate or reniform* shorter than their stalks, *stem l. linear* the lower ones lanceolate, *fl.* 1 *or more* racemose, cor. turbinate-campanulate.—*E. B.* 866.—St. 6—12 in. high. Radical l. soon vanishing. Cor. blue. Cal.-segments linear-subulate.—Dry and hilly places. P. VII. VIII. *Hairbell.*

*** *Caps. stalked, erect, pores immediately below the calycine segments.*

6. *C. persicifolia* (L.); l. smooth slightly serrate, radical l. obovate narrowed into a petiole, stem l. linear-lanceolate sessile, raceme few-flowered, *cal.-segments lanceolate.*—*E. B. S.* 2773.—St. 1—2 feet high. L. long, narrow, with very narrow serratures. Fl. very large, often solitary. Cal.-segments entire.—"Woods near Cullen." A very doubtful native. P. VII. S.?

7. *C. Rapunculus* (L.); l. crenate, radical l. elliptic-lanceolate narrowed into a petiole, stem l. linear-lanceolate, panicle erect racemose, *cal.-segments subulate.*—*E. B.* 283.—St. 3 feet high, angular, rough. Fl. small, pale blue. Cal.-segments entire.—Gravelly soil in the south. P. VII. VIII. *Rampions.* E.

8. *C. patula* (L.); l. crenate, radical l. oblong-elliptical narrowed into a petiole, stem l. linear-lanceolate, *panicles lax, fl. on long stalks, cal.-segments toothed at the base* subulate.—*E. B.* 42. —St. 2 feet high, terminating in a very loose spreading panicle. Fl. blue, funnelshaped, open.—Hedges and thickets. B. VII. VIII. E.

5. Specularia *Heist.*

1. *S. hybrida* (A. DC.); st. simple or branched, l. slightly crenate wavy oblong sessile, lower l. spathulate, cal. scabrous: segments lanceolate longer than the cor. shorter than the ovary.—*Campanula* Sm. *E. B.* 375.—St. 6—12 in. high, rough with rigid minute hairs. Fl. few, terminal, solitary, small.—Corn-fields. A. VI.—IX. E. S.

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6. WAHLENBERGIA *Schrad.*

1. *W. hederacea* (Reich.); l. roundish-cordate angularly 5-lobed stalked alternate, st. filiform prostrate, peduncles solitary, "seeds punctate."—*Campanula* Sm. *E. B.* 73.—St. branched and creeping to a great extent. Peduncles longer than the leaves. Fl. pale blue, at first nodding, afterwards erect. Cal.-segments subulate. Caps. nearly globose.—Damp peaty places in the south and west. P. VII. VIII. *Ivy-leaved Bell-flower.*

Order XLVIII. ERICACEÆ.

Cal. 4—5-parted, persistent. Cor. monopetalous, 4—5-parted, usually regular and marcescent. Stam. 8. Anth. 2-celled, opening by pores and often appendaged. Ovary surrounded by a disk or scales, free or adhering to the corolla. Fr. capsular or baccate with several cells, many-seeded.

Tribe I. *ARBUTEÆ.* Fr. baccate, fleshy. Anth. 2-celled. Disk hypogynous.

1. ARBUTUS. Cal. 5-parted. Cor. globose or ovate-campanulate with a small contracted 5-cleft reflexed border. Stam. 10 with flattened filaments. Anth. compressed, with 2 pores at the apex, fixed at the back beneath the apex and there furnished with 2 reflexed awns. *Berry* globose, *granular*; *cells* 5, *many-seeded.*

2. ARCTOSTAPHYLOS. Fr. with 5 1-seeded cells, not granular externally. Otherwise like *Arbutus.*

Tr. II. *ERICEÆ.* Fr. capsular, dry. Anth. 2-celled. Disk hypogynous. Testa close.

3. ANDROMEDA. Caps. dry, of 5 cells and 5 valves. Otherwise like *Arbutus.*

4. CALLUNA. *Cal. 4-parted,* membranous, coloured, longer than the 4-cleft campanulate corolla, surrounded by 4 green bracts. Stam. 8, with dilated filaments. Caps. 4-celled; *dissepiments adhering to the axis*; *valves opening at the dissepiments and separate from them.*

5. ERICA. Cal. 4-parted. Cor. campanulate or ovate often ventricose, 4-toothed. Stam. 8. Caps. 4-celled; *valves opening between the dissepiments and carrying a part with them.*

6. PHYLLODOCE. *Cal. 5-parted.* Cor. ovate with a contracted 5-toothed mouth. Stam. 10, included; *filaments slender, longer than the anthers*; *cells short, truncate,* opening by

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pores at the apex. *Stigma peltate with 5 tubercles.* Caps. 5-celled with 5 valves opening at the dissepiments.

7. DABŒCIA. Cal. 4-cleft. Cor. ovate, ventricose, limb 4-toothed. Stam. 8, included; *filaments flattened shorter than the linear anthers* which are sagittate below; cells loosened and opening by oblique pores at the apex. *Stigma simple truncate.* Caps. 4-celled with 4 valves opening at the dissepiments.

8. AZALEA. Cal. 5-parted. Cor. campanulate, 5-cleft. Stam. 5, equal, shorter than the corolla; anth. roundish; *cells opening by a longitudinal fissure.* Stigma capitate. *Caps.* 2—3-celled *with 2 or 3 bifid valves whose inflexed edges form the double partitions.*

Tr. III. *VACCINEÆ.* Fr. baccate, fleshy. Anth. 2-celled. Disk epigynous.

9. VACCINIUM. Cal. entire or 4—5-toothed or lobed. Cor. 4—5-cleft or toothed. Stam. 8—10; anth. oblong, bifid at the summit. *Berry globose,* crowned by the persistent limb of the calyx, 4—5-celled, *many-seeded.*

Tr. IV. *PYROLEÆ.* Fr. capsular, dry. Seeds with a loose testa. Disk 0. Anth. opening by pores.

10. PYROLA. Cal. 5-parted. Cor. of 5 petals. Stam. 10; anth. inverted, with 2 *cells each opening by a round pore at the base. Style 5-lobed.* Caps. 5-celled, 5-valved, opening near the base, margins of the valves connected by a web.

11. MONESES. Cal. 5-parted. Cor. of 5 petals connected below. Stam. 10; anth. inverted with 2 *cells each furnished with a tubular horn opening at the end. Stigma 5-parted, radiant.* Caps. 5-celled, 5-valved, "opening from the summit" with connected margins.

Tr. V. *MONOTROPEÆ.* Fr. capsular, dry. Seeds with a loose testa. Disk 0. Anth. opening by a transverse fissure.

12. MONOTROPA. Cal. 4—5-parted. Cor. of 4—5 *petals, each with a hooded nectariferous base.* Stam. 8—10. Anth. kidney-shaped, 1-celled, 2-valved. Stigma peltate. Caps. 5-celled, 5-valved, many-seeded.

Tribe I. *Arbuteæ.*

1. ARBUTUS *Linn.*

1. *A. Unedo* (L.); bark rough, l. elliptic-lanceolate serrated coriaceous glabrous, panicle terminal nodding, pedicels glabrous. —*E. B.* 2377.—An evergreen tree. Fr. whitish, pendulous. Fr.

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red.—The great ornament of Killarney where it is truly wild, T. IX. X. L.

2. ARCTOSTAPHYLOS *Adans.*

1. *A. alpina* (Spr.); procumbent, *l. wrinkled serrated* deciduous, clusters terminal.—*Arbutus* Sm. *E. B.* 2030. *St.* 6. 8.—St. woody, trailing, long. L. obovate, reticulated. Fl. white, hairy about the mouth. Berry smooth, black.—Mountainous heaths in the north. Sh. V. *Black Bear-berry.* S.

2. *A. Uva-ursi* (Spr.); procumbent, *l. obovate entire shining* evergreen, clusters terminal.—*Arbutus* Sm. *E. B.* 714. *St.* 6. 8.—St. woody, trailing, long. L. obtuse, quite entire. Fl. rose-coloured, smooth. Berry globose, scarlet.—Dry stony alpine heaths. Sh. VI.

Tribe II. *Ericeæ.*

3. ANDROMEDA *Linn.*

1. *A. polifolia* (L.); l. alternate lanceolate with revolute margins glaucous beneath, fl. subumbellate terminal.—*E. B.* 713.—St. slender, woody, prostrate below. Fl. drooping, ovate, pink. L. evergreen, acute. Peduncles 2 or 3 times as long as the flowers, incorrectly represented in E. B.—Peat bogs. Sh. V.—IX.

4. CALLUNA *Salisb.*

1. *C. vulgaris* (Salisb.). The only species.—*E. B.* 1013.—A low tufted shrub with small sessile closely imbricated keeled leaves arranged in 4 rows, each l. having 2 small spurs at the base and nearly or quite smooth. Fl. small, shortly stalked, drooping, rose-coloured or white.—*β. tomentosa*; l. hoary.—Dry heaths. Sh. VI.—VIII. *Common Heath. Ling.*

5. ERICA *Linn.*

* Erica (*D. Don*); *cor. globose or urceolate, stam. included, filaments capillary, stigma peltate.*

1. *E. Tetralix* (L.); *l.* 4 in a whorl lanceolate or linear ciliated *downy above and on the midrib beneath*: margins revolute, fl. capitate, *sep. linear downy* ciliated, anth. awned, *ovary downy.*—*E. B.* 1014.—St. branched below, often in a determinate manner about the middle, simple in the upper part, densely leafy below, the whorls more distant towards the top and usually leaving a leafless space next to the flowers. Young l. always downy above, old l. sometimes glabrous. Sep. downy and mealy. Fl. rose-coloured. Style usually included.—Boggy heaths. Sh. VII. VIII. *Cross-leaved Heath.*

2. *E. mackaiana* (Bab.); *l.* 4 in a whorl ovate ciliated *the midrib beneath and upper surface glabrous*: margins revolute, fl.

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capitate, *sep. oblong-ovate glabrous*, anth. awned, *ovary glabrous*. —St. irregularly branched throughout, particularly above, densely and equally leafy quite up to the flowers. L. and sepals quite without down, l. mealy beneath: midrib bare, sep. with a small portion of meal near the apex beneath otherwise quite bare. Fl. purplish. Style protruded.—Durieu's Asturian specimen exactly corresponds with the Irish plant.—Between Roundstone and Clifden, Cunnamara. Sh. VIII. IX. *Mackay's Heath.* I.

3. *E. cinerea* (L.); *l.* 3 *in a whorl* linear-lanceolate acute *keeled beneath with a central furrow glabrous, fl. in dense whorled racemes*, sep. linear-lanceolate smooth acute keeled, anth. awned, ovary glabrous.—*E. B.* 1015.—St. with numerous upright branches. L. flat above, the edges minutely serrulate. Fl. reddish-purple.—Dry heaths. Sh. VII. VIII. *Fine-leaved Heath.*

4. *E. ciliaris* (L); *l.* 4 in a whorl *ovate ciliated* the margins revolute, *fl. in terminal unilateral racemes*, anth. without awns, mouth of the cor. oblique.—*E. B. S.* 2618.—St. long, straggling, each terminating in a long raceme of large oblong purple flowers and producing numerous short barren branches. Style protruded.—Heaths in Dorset and Cornwall. Sh. VII. VIII. E.

** Gypsocallis (*D. Don*); *cor. campanulate or short-tubular, stam. exserted, filaments flattened, style capitate.*

5. *E. mediterranea* (L. ?); *l.* 4 *in a whorl linear glabrous* flat above *convex* with a central furrow *beneath*, decurrent line from the l. reaching but not extending beyond the next whorl, fl. axillary drooping racemose, *cor. cylindrical-urceolate* twice as long as the coloured calyx, *anth. without awns* opening throughout nearly their whole length.—*E. B. S.* 2774.—St. 2—5 feet high, with numerous, upright rigid branches terminating in leafy racemes of flesh-coloured flowers but afterwards prolonged. L. numerous erecto-patent. Bracts above the middle of the pedicels. Stam. and style slightly exserted, style afterwards elongated. Germen glabrous.—Our plant differs from *E. carnea*, to which it is referred by Bentham (*DC. Prod.* vii. 614.), by its l. having a longitudinal furrow and not keel on the back, the decurrent ridge from their base not extending beyond the next whorl (in *E. carnea* it reaches the second), the anthers much shorter and their pores much longer in proportion, and the cor. of a different shape. I am unable to detect any distinction between our plant and a beautiful specimen of *E. mediterranea* from Portugal (*Welw. Iter Lusit.* 31.). The name is bad; the plant being, it is said, confined to the Atlantic coast.—Mountain bogs in the west of Mayo and Galway. Urrisbeg; Curraan Achil; Burrishoole Lake; &c. Sh. IV. I.

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6. *E. vagans* (L.) ; l. 4—5 in a whorl linear glabrous, fl. axillary crowded, *cor. short campanulate*, sep. small ovate obtuse, anth. ovate of 2 distinct cells gibbous at the base.—*E. B.* 3.—St. 1—2 feet high, copiously branched. Fl. usually collected in large numbers considerably below the top of the branches, cor. red or white. Anth. dark purple. Germen glabrous.—Western parts of Cornwall. Coast of Waterford. Sh. VII. VIII. *Cornish Heath.* E. I.

6. PHYLLODOCE *Salisb.*

1. *P. cærulea* ; l. linear with denticulated margins, peduncles glandular-hairy, calycine segments lanceolate acute, anth. 3 times shorter than the glabrous filaments.—*Menziesia* Sm. *E. B.* 2469.—St. 4—5 in. high, determinately branched, naked below, densely hairy above. Peduncles terminal, aggregate, simple. Fl. large, pale bluish-red.—Sow of Athol, Perthshire ; nearly if not quite extirpated by an Edinburgh nursery-man. Sh. VI. VII. S.

7. DABŒCIA *D. Don.*

1. *D. polifolia* (D. Don). The only species.—*Menziesia* Sm. *E. B.* 35.—St. bushy, 1—2 feet long, ultimately decumbent. L. ovate or elliptical, flat, with revolute margins, white and cottony beneath. Fl. large, purple, sometimes white, drooping, on short stalks, in terminal simple unilateral clusters. Anth. very large.—Cunnamara. Sh. VIII. *Cunnamara or St. Dabeoc's Heath.* I.

8. AZALEA *Linn.*

1. *A. procumbens* (L.). The original Azalea of Linnæus and only species.—*E. B.* 865. *Loiseleuria* Desv., DC.—St. woody, spreading, procumbent. L. small, opposite, revolute. Fl. small, on simple stalks, terminal, aggregated.—Summits of the highland mountains. Sh. V. VI. S.

[LEDUM *palustre* has no claims to be considered as a British plant.]

Tribe III. *Vaccineæ.*

9. VACCINIUM *Linn.*

* *Anthers with 2 dorsal horns.*

1. *V. Myrtillus* (L.) ; *l. ovate serrated* glabrous deciduous, fl. solitary, st. acutely angular.—*E. B.* 456.—St. woody, about a foot high, branching. Fl. greenish, tinged with red, nodding. Berries black.—Stony woods and heaths. Sh. V. *Common Bilberry.*

2. *V. uliginosum* (L.) ; *l. obovate entire glaucous and veined beneath* deciduous, fl. aggregate, st. rounded.—*E. B.* 581. *St.*

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12.—St. woody. Fl. flesh-coloured, nodding. Berries black. —Mountain bogs. Sh. V. *Great Bilberry or Bog Wortleberry.* E. S.

** *Anthers without horns on the back.*

3. *V. Vitis-idæa* (L.); *l. obovate dotted beneath* persistent: margins revolute and *somewhat crenate*, fl. racemose terminal, *cor. campanulate.*—*E. B.* 598.—St. woody, 6—8 in. high, straggling. L. like those of box, dark green above. Fl. pink, 4-cleft. Berries red.—Mountain heaths. Sh. VI. VII. *Red Wortleberry. Cowberry.*

4. *V. Oxycoccos* (L.); *l. ovate entire* persistent with revolute margins *glaucous beneath*, fl. terminal on long simple pedicels, *cor. rotate* with reflexed segments.—*E. B.* 319. *Oxycoccus palustris* Pers.—St. procumbent, filiform, rooting. L. small. Fl. bright rose-colour. Cor. deeply divided, remarkably reflexed. Berries crimson. Sh. VI. VII. *Cranberry.*

Tribe IV. *Pyroleæ.*

10. Pyrola *Linn.*

1. *P. rotundifolia* (L.); l. nearly round entire or slightly crenate, fl. racemose, cal.-segments lanceolate acute, *stam. ascending style much longer bent down and curved upwards at the end*, stigma annular with 5 erect blunt points.—*E. B.* 213.—Fl. white, rather numerous, expanded. Pedicels with 2 or 3 lanceolate scales. Style longer than the petals. Stam. all turned upwards. L. numerous.—*P. chlorantha* (Sw.) differs by having its cal.-segments ovate-triangular and as broad as long.—Damp bushy places and reedy marshes. P. VIII. E. S.

2. *P. media* (Sw.); l. nearly round or roundish-oval slightly crenate, fl. racemose, cal.-segments ovate acute, *stam. regularly inflexed style longer nearly straight declining, stigma annular with 5 erect points*—*E. B.* 1945.—Fl. milk-white, tinged with pink, rather numerous, less expanded than in the preceding. Style projecting a little beyond the corolla, always nearly straight. Stam. all regularly incurved round the germen. L. numerous. —Woods in the north. P. VII. VIII.

3. *P. minor* (L.); l. roundish-oval crenate, fl. racemose, cal.-segments ovate-triangular acute, stam. regularly inflexed *style the same length straight, stigma without a ring* 5-lobed pointless. —*E. B.* 2543 and 158 (bad). *St.* 13. 12.—Fl. pale pink, numerous, on very short pedicels, nearly closed. Style very short, included. Stam. all equally inflexed. L. numerous.—Mossy woods and thickets. P. VII.

4. *P. secunda* (L.); l. ovate acute serrated, *fl. in a secund ra-*

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ceme, cal.-segments triangular rounded notched, stam. regularly incurved *style long straight*, stigma 5-lobed without a ring or points.—*E. B.* 517. *St.* 13. 13.—L. white, drooping, oval-oblong, nearly closed. Style very long, exserted. L. numerous.—Mossy alpine woods. P. VII.

11. MONESES *Salisb.*

1. *M. grandiflora* (Salisb.). The only species.—*Pyrola* Sm. *E. B.* 146.—L. few, roundish, serrated. Fl. solitary, terminal, large, drooping, white, open, nearly an inch broad. Stam. shorter than the pet. and closely adpressed to them. Stigmas very large.—Alpine woods. P. VI. VII. S.

Tribe V. *Monotropeæ.*

12. MONOTROPA *Linn.*

1. *M. Hypopitys* (L.); fl. in a drooping cluster, lateral ones with 8 terminal with 10 stamens, fr. erect, bracts and fl. glabrous externally.—*E. B.* 69.—Inner side of the pet., filaments, germen and style glabrous (*Hypopitys glabra* Bernh., DC.), or hairy (*H. multiflora* Scop., DC.), but these differences do not appear to me to be constant.—Plant 6—8 in. high, succulent, simple, clothed with ovate scales, terminating in a short cluster, dingy yellow, at length turning nearly black. Fl. with large scaly bracts, not parasitical. (See Phyt. i. 341.) The clusters are sometimes erect.—Woods. P. VII. VIII. *Yellow Bird's-nest.*

Order XLIX. ILICINEÆ.

Sep. inferior, 4—6, imbricated. Cor. regular, 4—6-parted, imbricate. Stam. inserted into the base of the corolla and alternate with its lobes. Disk 0. Ovary 2—6-celled; ovules solitary, pendulous, with a cupshaped funiculus. Fr. fleshy, not bursting; seeds stony, 2—6.

1. ILEX. Cal. 4—5-fid, persistent. Cor. rotate, 4—5-fid. Stam. 4—5, inserted upon the corolla. Stigmas 4—5, nearly sessile. Fr. fleshy, containing 4—5 1-seeded nuts.

1. ILEX *Linn.*

1. *I. Aquifolium* (L.); l. ovate acute spinous wavy shining, peduncles axillary short many-flowered, fl. somewhat umbellate.—*E. B.* 496. *St.* 7. 4.—A small tree with evergreen leaves which are quite entire on the upper branches but edged with strong spinous teeth and terminated by a spine on the lower ones. Fl. white. Berries scarlet.—Woods and hedges. T. VI.—VIII. *Holly.*

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Order L. JASMINACEÆ.

Cal. monosepalous, divided, persistent. Cor. with 4—8 divisions, rarely 0, valvate. Stam. 2. Ovary free, 2-celled; ovules in pairs, pendulous. Stigma entire or bifid. Fr. a berry, drupe or capsule, often 1-seeded. Albumen dense or none.

1. LIGUSTRUM. Fr. fleshy, a berry containing 2 membranous 1-seeded nuts. Cal. 4-cleft. Cor. funnelshaped, limb 4-cleft spreading. Stam. 2.

2. FRAXINUS. Fr. dry, a pendulous samara of 1 or 2 single-seeded cells. Cal. 0 or 4-cleft. Cor. 0.—Fl. sometimes without stamens.

1. LIGUSTRUM *Linn.*

1. ***L. vulgare*** (L.); l. elliptic-lanceolate entire glabrous, panicles terminal compound dense.—*E. B.* 764. *St.* 14. 1.—A bushy shrub, 6—8 feet high, with straight smooth branches and opposite leaves. Fl. white. Berries globose, black.—Hedges and thickets in the south-west of England. Sh. VI. VII. ***Privet.*** E. S.? I.?

2. FRAXINUS *Linn.*

1. ***F. excelsior*** (L.); l. pinnate with 4—8 pairs of nearly sessile ovate-lanceolate acuminate serrate leaflets, cal. wanting. —*E. B.* 1692. *St.* 44. 7.—A handsome tree. Fl. appearing before the l., in axillary clusters. *β. heterophyllus* (Hook.), l. simple and pinnate.—*E. B.* 2476.—Woods and hedges. ***Ash.***

Order LI. APOCYNEÆ.

Cal. in 4 or 5 persistent divisions. Cor. regular, 4—5-lobed, deciduous, contorted. Stam. 5, filaments distinct. Anth. 2-celled, pollen granular. Ovaries 2, 1-celled; or 1 of 2 cells. Stigma 1. Seed with fleshy albumen.

1. VINCA. Cor. salvershaped; tube long with 5 angles at the mouth, closed with spreading hairs and the connivent stamens; limb flat, 5-lobed. Styles 5. Stigma capitate with a ring at its base. Fr. of 2 erect elongated follicles.

1. VINCA *Linn.*

1. ***V. minor*** (L.); st. procumbent, l. lanceolate-elliptical, their margins as well as those of the small lanceolate calyx-segments glabrous.—*E. B.* 917.—St. prostrate, rooting, flowering branches erect. Fl. smaller than those of the next, blue, rarely white.—Woods and thickets. P. V. VI. ***Lesser Periwinkle.***—E. S.? I.?

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*2. *V. major* (L.); st. somewhat ascending, l. ovate acute or subcordate, their margins as well as those of the elongate-subulate calyx-segments ciliated.—*E. B.* 514.—St. at first ascending, afterwards prostrate and rooting, flowering shoots erect. Fl. large, purplish-blue.—Hedges and thickets, naturalized. P. IV. V. *Greater Periwinkle.* E. S. ? I. ?

Order LII. GENTIANEÆ.

Cal. inferior, persistent. Cor. regular, 4—8-fid, hypogynous, marcescent; æstivation imbricate-twisted. Stam. inserted on the cor., as many as the segments. Ovary of 2 carpels with the edges slightly inflexed or meeting. Caps. or berry many-seeded, generally 2-valved.

Subord. I. TRUE GENTIANEÆ. Æstivation of the corolla twisted. L. opposite.

* *Style deciduous.*

Tribe I. *CHLOREÆ.* Corolla rotate.

1. CHLORA. Cal. 8-parted. Cor. nearly rotate, 8-parted. Stam. 8. Style 1. Stigma 2—4-cleft. Caps. 1-celled, placentas on the inflexed margins of the valves.

Tr. II. *ERYTHRÆÆ.* Corolla funnelshaped.

2. ERYTHRÆA. Cal. 5-fid. Cor. funnelshaped, limb short 5-fid. Stam. 5. Anth. erect, at length spirally twisted. Style simple, stigmas 2. Caps. imperfectly 2-celled from the inflexed margins of the valves.

3. CICENDIA. Cal. 4-lobed, tubular. Cor. funnelshaped, limb short 4-fid. Stam. 4. Anth. erect, not twisted. Stigma capitate, undivided. Caps. 1- or imperfectly 2-celled.

** *Style persistent or stigma sessile.*

Tr. III. *SWERTIÆ.* Style often wanting, stigma persistent.

4. GENTIANA. Cal. 4—5-cleft. Cor. funnel- or salvershaped, limb 4—5-cleft. Stam. 4—5. Stigmas 2. Caps. 1-celled, seeds on the inflexed margins of the valves.

Subord. II. MENYANTHIDEÆ. Æstivation of the corolla induplicate. L. alternate.

5. VILLARSIA. Cal. 5-parted. Cor. rotate; limb 5-parted, smooth on the disk, bearded or scaly at the base. Stam. 5. Stigma with 2 toothed lobes. Caps. 1-celled with sutural placentas, 2-valved (in our plant), not bursting.

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6. MENYANTHES. Cal. 5-parted. Cor. funnelshaped; limb 5-parted, bearded internally. Stam. 5. Stigma capitate. Caps. 1-celled, 2-valved, "valves bearing the seeds in their axis."

Suborder I. *True Gentianeæ.* Tribe I. *Chloreæ.*

1. CHLORA *Linn.*

1. *C. perfoliata* (L.); lowermost l. elliptic-oblong narrowed below, stem l. broadly perfoliate—*E. B.* 60.—St. 12—18 in. high, simple. Stem l. triangular-ovate, connected by their whole breadth in rather distant pairs, glaucous. Panicle forked, many-flowered. Cal. divided to its base into linear-subulate segments. Cor. bright yellow. Stigmas scarlet.—Dry calcareous hills. A. VII.—IX. *Yellow-wort.* E. I.

Tribe II. *Erythrææ.*

2. ERYTHRÆA *Renealm.*

1. *E. pulchella* (Fries); st. erect much branched acutely quadrangular, l. ovate the uppermost oblong-lanceolate, *fl. all stalked* axillary and terminal, *cal. a quarter shorter than the tube of the opening corolla,* lobes of the cor. elliptic-oblong obtuse.—*E. B.* 458. *E. ramosissima* Pers., Griseb.—St. sometimes quite simple, 1 in. high and single-flowered; at other times very much branched, even from the base, 6—8 in. high, with very numerous flowers. Radical l. very few. Inflorescence dichotomously divided, the *lateral fl. distant from the floral leaves.* The length of the tube must be observed exactly at the time when the flower is about to expand.—Sandy ground. A. VII.—IX.

2. *E. Centaurium* (Pers.); st. erect branched above quadrangular, l. elliptic-oblong the upper ones acute, *fl. nearly sessile* corymbosely panicled, *cal. about half as long as the tube of the opening corolla,* lobes of the cor. oval.—*E. B.* 417.—St. 6—18 in. high, usually simple below. Panicles of fl. lax. *Lateral fl.* apparently stalked but *sessile between the small floral leaves.* Radical l. numerous.—Dry pastures. A. VII. VIII. *Common Centaury.*

3. *E. latifolia* (Sm.); st. short branched from the base quadrangular, l. broadly elliptical obtuse, *fl. in dense forked tufts sessile, cal. about a quarter shorter than the tube of the opening corolla,* lobes of the cor. lanceolate.—*E. B. S.* 2719.—St. thick, 2—3 in. high, sometimes taller and branched, usually dividing into 3 main branches. *Fl. densely aggregated.* Radical l. very large, with 5—7 ribs, numerous.—Near the sea-shore. A. VI.—VIII. E. I.

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4. *E. linarifolia* (Pers.); st. simple solitary or several from the crown of the root, l. oblong-linear obtuse narrowed below, radical l. crowded spathulate, *fl. sessile* densely corymbose, *calyx as long as the tube of the opening corolla*, lobes of the cor. oval obtuse.—*E. littoralis* Hook. *E. B.* 2305.—St. 2—6 in. high, solitary or several, simple, with scabrous angles. Inflorescence usually trichotomous, dense, branches sometimes elongated. Radical l. only slightly larger than those of the stem, numerous.—Sandy sea-shores. A. VII. VIII.

3. Cicendia *Adans.*

1. *C. filiformis* (Reich.); cal. half tubular adpressed to the subglobose tube of the corolla, lobes ovate acute, st. thread-shaped forked, fl. solitary on long stalks.—*Exacum* Sm. *E. B.* 235. *Gentiana* Koch.—St. very slender, 1—4 in. high. Radical l. linear-lanceolate, stem l. subulate, all sessile. Fl. yellow. Caps. with the edges of the valves not inflexed.—Damp sandy places. A. VII. VIII. E. I.

Tribe III. *Swertiæ.*

4. Gentiana *Linn.*

1. *G. Amarella* (L.); cor. salvershaped 5-cleft bearded in the throat, *cal.-segments* 5 *nearly equal* linear-lanceolate, l. sessile ovate-lanceolate; radical l. obovate.—*E. B.* 236.—Very variable in size and in the number of the flowers, 3—12 in. high, erect. St. square, much branched. Fl. pale purple.—Grisebach distinguishes *G. germanica* from this by its acuminate calyx lobes, obconical tube of the corolla, and stalked capsules. In all these points (which I fear are not constant) my British specimens agree better with *G. germanica* than *G. Amarella*, which possesses, according to that author, obtuse calyx lobes, a cylindrical tube to the corolla, and sessile capsules. He refers to both plants as being natives of Britain. Reichenbach adds as a character of *G. germanica* revolute margins of the calyx-segments. It appears to me that these 2 and also *G. obtusifolia* (Willd.) form only one species. See *Trans. Bot. Soc. Edin.* i. 59. and *Phyt.* i. 381.—Dry calcareous fields. A. VIII. IX.

2. *G. campestris* (L.); cor. salvershaped 4-cleft bearded in the throat, *cal.-segments* 4, 2 *outer ones very large* ovate, l. elliptic-oblong.—*E. B.* 237.—St. 3—10 in. high. Fl. blue, tube of the corolla slightly thicker upwards. Caps. nearly sessile.—Dry limestone hills. A. VIII. IX.

3. *G. nivalis* (L.); cor. salvershaped 5-cleft with minute intermediate bifid segments, *throat naked, cal. cylindrical with* 5 *keeled angles*, l. ovate lowermost broadly elliptical.—*E. B.* 896.

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—St. erect, slightly branched, 2 or 3 in. high. Fl. bright blue. —Summits of highland mountains, very rare. A. VIII. S.

4. *G. verna* (L.); cor. salvershaped 5-cleft with small intermediate bifid segments, throat naked, cal. with prominent angles and sharp teeth, l. ovate lower ones crowded, *st. cæspitose single-flowered* with 1 or 2 pairs of leaves.—*E. B.* 493. *St.* 40. 12.—St. prostrate, rooting, each terminating in a roselike tuft of l. and producing a single short flowering shoot. Fl. rather large, vivid blue.—Barren limestone districts. Burrin and between Gort and Galway, Clare. Teesdale, Durham. P. IV. E. I.

5. *G. Pneumonanthe* (L.); *cor. bellshaped* 5-cleft, throat naked, cal. entire with linear obtuse segments, *fl. mostly solitary* slightly stalked, *l. linear* obtuse.—*E. B.* 20.—St. 4—10 in. high, leafy, simple, erect or ascending. Fl. very large, deep blue with 5 greenish bands down the middle of each segment.—Moist turfy heaths. A. VIII. IX. E.

[*G. acaulis* (L.) *E. B.* 1594. has been improperly recorded as British.]

[*SWERTIA perennis* (L.) which may be known from our plants of this Order by the 2 curious fringed glands at the base of each segment of the corolla (*E. B.* 1441.) is said to have been formerly found in Wales.]

Suborder II. *Menyanthideæ.*

5. Villarsia *Vent.*

1. *V. nymphæoides* (Vent.); l. opposite heartshaped floating wavy at the edges, peduncles aggregate 1-flowered, cor. ciliated. —*E. B.* 217. *St.* 13. 4. *Limnanthemum* Gmel., Griseb.—Floating. St. long, round, branched. L. resembling those of *Nymphæa alba* but much smaller. Fl. yellow.—Still places in rivers, rare. P. VII. VIII. E.

6. Menyanthes *Linn.*

1. *M. trifoliata* (L.). The only species.—*E. B.* 495. *St.* 8. —L. ternate. Leaflets equal, obovate, wavy. Clusters stalked, each opposite to a leaf, many-flowered. Cor. flesh-coloured, densely bearded. St. ascending, round, leafy.—Boggy places. P. V.—VII. *Buckbean.*

Order LIII. POLEMONIACEÆ.

Cal. inferior, 5-parted, persistent. Cor. hypogynous, regular, 5-lobed. Stam. 5, unequal, on the tube of the corolla. Ovary 2-celled. Stigmas 3-fid. Caps. 3-celled, 3-valved, valves separating at the axis.

1. Polemonium. Cal. 5-fid. Cor. rotate, with a short tube

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and 5-lobed limb, throat nearly closed by the dilated bases of the filaments.

1. POLEMONIUM *Linn.*

1. ***P. cæruleum*** (L.); st. angular, l. glabrous pinnate, leaflets ovate-lanceolate pointed, panicle downy glandular.—***E. B.* 14.**—St. 1—2 feet high, simple, hollow. L. alternate, leaflets numerous. Fl. numerous, somewhat drooping, bright blue or white.—Bushy hilly places, rare. P. VII. ***Blue Jacob's Ladder.***

Order LIV. CONVOLVULACEÆ.

Cal. inferior, 5-parted, persistent, imbricated, often unequal. Cor. hypogynous, regular, plaited, deciduous. Stam. 5, from near the base of the corolla. Ovary of 2—4 cells, few-seeded, surrounded by an annular hypogynous disk. Style 1, rarely 2. Caps. with the valves separating from the edges of the dissepiments or bursting transversely.

* *With leaves and cotyledons.*

1. CONVOLVULUS. Cor. bellshaped, with 5 prominent plaits and 5 shallow lobes. Style simple, stigmas 2. Caps. 2—4-celled, cells 2-seeded.

** *Without leaves or cotyledons.*

2. CUSCUTA. Cal. 4—5-cleft. Cor. roundish-urceolate or bellshaped, 4—5-parted, with as many scales alternating with the segments at the base within. Stam. 4—5. Styles 2, rarely 1. Caps. bursting transversely, 2-celled, 4-seeded.

1. CONVOLVULUS *Linn.*

1. *C. arvensis* (L.); l. arrowshaped with acute lobes, peduncles mostly 1-flowered, bracts minute distant from the flower.—***E. B.* 312.**—St. numerous, angular, twining or prostrate, leafy, branched. Peduncles sometimes 2-flowered. Cor. beautifully variegated with pink and white. Roots descending remarkably deep. Plant glabrous or (*β.* hirtus *Koch*) st. and l. downy.—Fields and hedges. P. VI.—VIII. ***Small Bindweed.***

2. *C. Sepium* (L.); l. arrowshaped with truncate lobes, peduncles 1-flowered square, ***bracts large cordate close to the flower.***—***E. B.* 313.**—St. twining, many feet long, with large rather distant leaves. Fl. solitary, axillary, large, white. Bracts quite inclosing the calyx. Fr. imperfectly 2-celled through the shortness of the dissepiment.—Hedges and thickets. P. VII. VIII. ***Great Bindweed.***

3. *C. Soldanella* (L.); l. reniform slightly angular fleshy, peduncles 1-flowered with 4 membranous angles, ***bracts ovate close to the flower.***—***E. B.* 314.**—St. short, procumbent. Fl. large,

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solitary, axillary, very handsome, pink with yellow bands. Bracts rather shorter than the calyx.—Sandy sea-shores. P. VI.—VIII. *Sea-side Bindweed.*

2. CUSCUTA *Linn.*

1. *C. europæa* (L.); clusters of fl. bracteated sessile, tube of the cor. at first cylindrical afterwards ventricose, *scales adpressed* to the inside of the tube erect bifid, *cal. much shorter than the corolla.—E. B.* 378.—St. threadshaped, branching, reddish. Fl. in rather large clusters, yellowish.—Parasitical upon herbaceous plants. A. VIII. IX. *Greater Dodder.* E.

†2. *C. Epilinum* (Weihe); clusters of fl. bracteated sessile, tube of the cor. ventricose, *scales palmately cut* adpressed, *cal. with fleshy segments deltoid below nearly as long as the tube of the corolla.—E. B. S.* 2850.—St. slender, nearly simple, pale green. Fl. in rather small distant clusters, whitish.—Parasitical upon flax and very injurious to the crop. A. VIII. *Flax Dodder.*

3. *C. Epithymum* (Murr.); clusters of fl. bracteated sessile, tube of the cor. cylindrical, *scales palmately cut converging, cal. much shorter than the tube of the corolla.—E. B.* 55.—St. slender, red. Fl. small, with a reddish cal. and white cor. with a spreading limb. Sep. rhomboidal-ovate, apiculate, unequal.—*β. trifolii*; sep. ovate-lanceolate acute whitish nearly or quite as long as the tube of the corolla. I have only seen dried specimens of this variety which will probably prove to be a distinct species.—Parasitical upon small shrubby plants. *β.* upon clover and often very destructive to the crop. A. VII.—IX. *Lesser Dodder.* E. S.

Order LV. BORAGINEÆ.

Cal. inferior, 4—5-parted, persistent. Cor. hypogynous, regular. Stam. 5, inserted on the corolla. Ovary 4-parted, 4-seeded, ovules pendulous. Style simple. Fr. separating in 4 nutlike or 2 bilocular portions. Seeds without albumen.

Tribe I. *CYNOGLOSSEÆ.* Nuts 4, affixed to the persistent base of the style.

1. ASPERUGO. Cal. 5-cleft with alternate smaller teeth, enlarged and compressed in fruit. Cor. funnelshaped with rounded scales in the throat. Stam. included, filaments short. *Nuts verrucose, compressed,* attached by their narrow side, covered by the compressed calyx.

[2. ECHINOSPERMUM. Cal. in 5 deep segments. Cor. salvershaped with rounded scales in the throat. Stam. included, subsessile. *Nuts triquetrous with muricated margins,* attached by their inner edge.]

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3. CYNOGLOSSUM. Cal. 5-cleft. Cor. funnelshaped, the mouth closed with prominent blunt scales. Stam. included; filaments very short. *Nuts roundish-ovate* depressed, muricated, attached by their inner edge.

Tr. II. *ANCHUSEÆ*. Nuts 4, affixed to an hypogynous disk, with an excavated space surrounded by a tumid ring at their base.

4. BORAGO. Cal. in 5 deep segments. *Cor. rotate*; tube very short; throat with short erect emarginate scales. *Stam. exserted*; filaments bifid, the inner fork bearing the anther; anthers linear-lanceolate, connivent in the form of a cone.

5. ANCHUSA. Cal. 5-fid. *Cor. funnelshaped with a straight tube*; throat closed by prominent obtuse scales. *Stam. included, subsessile*. Nuts depressed.

6. LYCOPSIS. Cal. in 5 deep segments. Tube of the cor. curved; limb oblique. Otherwise like *Anchusa*.

7. SYMPHYTUM. Cal. 5-cleft or 5-parted. *Cor. cylindrical-bellshaped, throat closed by* a prominent cone of connivent *lanceolate-subulate scales*. Stam. exserted from the tube but covered by the scales; filaments short. Nuts ovate.

Tr. III. *LITHOSPERMEÆ*. Nuts 4, affixed to an hypogynous disk, their base not excavated but attached by a flat or rather convex surface.

8. ECHIUM. Cal. in 5 deep segments. *Cor. subbellshaped; throat dilated, naked*; limb irregular. *Stam. exserted; filaments very long, unequal. Style bifid*. Nuts wrinkled, attached by a flat triangular base.

9. PULMONARIA. Cal. tubular, 5-fid. Cor. funnelshaped, its throat naked. *Stam. included* in the tube; *filaments very short. Style simple. Nuts* smooth, *attached by their truncate base with a central tubercle.*

10. STEENHAMMERA. Cal. in 5 deep segments. Cor. bell-shaped, with a short thick cylindrical tube with 5 minute protuberances in its throat. *Stam. protruded* beyond the throat; *filaments elongate*. Style simple. *Nuts* smooth, *rather drupaceous attached laterally near their base by a flat surface.*

11. LITHOSPERMUM. Cal. in 5 deep segments. Cor. funnel-shaped its throat naked or with 5 minute scales. *Stam. included in the tube; filaments very short*. Style simple. *Nuts* smooth or tubercular, *stony*, attached by their truncate flat base.

12. MYOSOTIS. Cal. 5-parted. *Cor. contorted in æstivation, salvershaped*; throat closed with scales; limb 5-fid, obtuse.

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Stam. included; filaments very short. Style simple. Nuts smooth, convex externally, keeled within, attached by a minute lateral spot near their base.—Distinguished from all the other genera of the Order by the contorted æstivation of its corolla.

Tribe I. *Cynoglosseæ.*

1. Asperugo *Linn.*

1. *A. procumbens* (L.). The only species.—*E. B.* 661.—St. procumbent, angular, rough with short decurved bristles. L. oblong, rough, hispid, lower ones stalked, upper sessile. Fl. small, axillary, solitary, blue, upon short peduncles. Cal. of the fr. much enlarged.—Waste places, rare. A. VI. VII. E. S.

2. Echinospermum *Sw.*

[1. *E. Lappula* (Lehm.); st. branched above, l. lanceolate adpressed-hairy, cor. longer than the calyx, fruit-stalks erect, nuts with a double series of barbed spines on the margins the disk and sides tubercled.—*St.* 43. 16.—St. and l. covered with adpressed hairs giving them a silky appearance. Closely resembling a *Myosotis* but belonging to a different tribe.—In one spot, upon shingle, near Southwold, Suff., in very small quantity; possibly introduced but by what means I cannot conjecture, certainly neither with seed nor amongst ballast.—A. VI.] E.

3. Cynoglossum *Linn.*

1. *C. officinale* (L.); l. downy acute, lower l. elliptical contracting into a petiole, *upper l. lanceolate narrowed below* subcordate half clasping—*E. B.* 921.—Cor. dull crimson, without veins. "Nuts plane in front surrounded by a thickened prominent margin."—Waste ground. B. VI. VII. *Hound's-tongue.*

2. *C. montanum* (Lam.); *l. slightly hairy* acute nearly glabrous and shining above scabrous beneath, inferior oblong narrowed into a long petiole, *upper l. lanceolate slightly narrowed* below clasping.—*C. sylvaticum* Sm. *E. B.* 1642.—Cor. reddish, changing to blue. L. sometimes very scabrous.—"Road-sides and hedges in shady situations." B. VI. VII.

Tribe II. *Anchuseæ.*

4. Borago *Linn.*

†1. *B. officinalis* (L.); lower l. obovate obtuse attenuated below, segments of the cor. ovate acute flat spreading.—*E. B.* 36. —Fl. blue. Stem-l. much narrowed below so as to appear stalked, eared at the base. Whole plant hispid with tubercled

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hairs. St. spreading.—On rubbish and in waste places, scarcely a native. B. VI. VII. *Borage.*

5. Anchusa *Linn.*

†1. *A. officinalis* (L.); *l. lanceolate* hispid, spikes crowded unilateral, bracts ovate-lanceolate, calyx-segments bluntish hairy on both sides, scales of the cor. hairy.—*E. B.* 662.—Fl. deep purple. Cal.-segments narrow, longer than the tube. St. 1—2 feet high, rough with deflexed hairs.—Waste ground, rare. P. VI. VII. *Common Alkanet.* E.

†2. *A. sempervirens* (L.); *l. ovate,* lower l. on long stalks, peduncles axillary each bearing 2 dense spikes with an intermediate flower, cal.-segments hairy on the outside only, bracts minute lanceolate, scales of the cor. downy.—*E. B.* 45.—Fl. blue, rather salver- than funnelshaped. Cal.-segments narrow. St. 1½—2 feet high, rough with spreading somewhat deflexed hairs.—Waste ground near ruins, rare. P. V.—VIII.

6. Lycopsis *Linn.*

1. *L. arvensis* (L.); l. lanceolate eroso-dentate very hispid, cal. of fr. bellshaped erect.—*E. B.* 938.—Fl. small, blue. Whole plant very hispid with strong hairs each rising from a scaly tubercle.—Corn-fields and hedges. A. VI. VII. *Bugloss.*

7. Symphytum *Linn.*

1. *S. officinale* (L.); l. ovate-lanceolate attenuated below, *stem l. very decurrent* lanceolate, *st. winged* in the upper part.—*E. B.* 817.—Height 1—2 feet. Racemes in pairs, drooping. Fl. yellowish-white or purple. Cal.-segments somewhat spreading in the purple-flowered variety which is *S. patens* Sibth.—Common in damp places. P. V. VI. *Comfrey.*

2. *S. tuberosum* (L.); l. ovate-oblong attenuated below, stem l. lanceolate, *uppermost slightly decurrent, st. scarcely winged* nearly simple.—*E. B.* 1502.—Fl. yellowish-white, whole plant smaller and slenderer than the last. Anth. twice as long as their filaments.—Damp places, rare. P. VI. VII.

[*S. asperrimum* and *S. orientale* have both been noticed in an apparently wild state in England, but possess no claims to be considered as natives.]

Tribe III. *Lithospermeæ.*

8. Echium *Linn.*

1. *E. vulgare* (L.); tubercular-hispid, st. erect simple, l. lanceolate 1-ribbed, stem *l. narrowed below* sessile, fl. in short *lateral* spikes, stam. longer than the corolla.—*E. B.* 181.—Lower l. attenuated into a footstalk. Fl. at first reddish, afterwards bright

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blue, remarkably handsome.—Dry places. B. VI. VII. *Viper's Bugloss.*

2. *E. violaceum* (L.); pilose-hispid, st. erect branched diffuse, lower branches prostrate, radical l. oblong-ovate stalked, *stem l. oblong narrowed from a cordate half clasping base* with lateral ribs, *spikes panicled* elongate simple, stam. scarcely longer than the corolla.—*E. B. S.* 2798. Lycopsis *Ray.*—Stam. very unequal, 1 short, 2 intermediate, and 2 longer. Fl. violet-blue. Hairs rising from minute tubercles. Root reddish; it stains the paper in the herb. deep violet.—Jersey. B. VI.—IX. O.

9. PULMONARIA *Linn.*

1. *P. officinalis* (L.); l. ovate roundish or cordate, upper l. oblong.—*E. B.* 118.—Whole plant more or less hispid. Fl. purple. L. often spotted.—Woods and thickets, rare. P. V. *Lungwort.* E. S.?

2. *P. angustifolia* (L.); l. all lanceolate.—*E. B.* 1628.—More pubescent than the last, but scarcely distinguishable as a species. —Woods in Hampshire. P. V. VI. E.

10. STEENHAMMERA *Reich.*

1. *S. maritima* (R.); st. procumbent branched, l. ovate acute rough with callous dots glabrous fleshy glaucous, nuts smooth. —*Lithospermum* Sm. *E. B.* 368.—Fl. in racemes, purplish-blue. Nuts closely converging. L. with a flavour resembling that of oysters. Differing more in habit, in which "it is sui-generis," than in character from *Lithospermum.*—Northern sea-shores. P. V. VI.

11. LITHOSPERMUM *Linn.*

1. *L. officinale* (L.); *st. erect* much branched, l. lanceolate acute veined hispid with tubercles and adpressed bristles above hairy beneath, throat of the cor. with minute scales within, nuts smooth.—*E. B.* 134.—Fl. greenish-yellow. Nuts gray, highly polished, stony, 2 or 3 ripening in each calyx. Root whitish.— This is the only true *Lithospermum* according to Spenner, none of the other species having a crown of scales in the throat of the corolla.—Dry and stony places. P. VI.—VIII. *Gromwell.*

2. *L. purpureo-cæruleum* (L.); barren st. prostrate creeping the others erect 2—3-fid above, l. lanceolate acute hispid: hairs adpressed tubercular on the upper side, cor. much longer than the calyx, nuts smooth.—*E. B.* 117—Fl. large, bright blue. Nuts "silvery white, highly polished, slightly rugged," rarely produced.—This species and the following have no scales in the throat of the cor. but merely 5 longitudinal downy folds. They belong to the genus *Rhytispermum* Link, Spenn.—Thickets on a limestone soil, rare. P. V.—VII. E.

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3. *L. arvense* (L.); st. erect branched, l. lanceolate rather acute hispid with adpressed tubercular hairs on both sides, cor. rather longer than the calyx, *nuts tubercular.*—*E. B.* 123.—Fl. small, white. Nuts pale brown, polished, wrinkled, pitted, 3 or 4 perfected in each calyx. Root bright red, communicating its colour to paper, &c.—Corn-fields. A. V.—VII. *Corn Gromwell.*

12. Myosotis *Linn.*

* *Persistentes.*

1. *M. palustris* (With.); cal. open when in fr. and shorter than the pedicel with straight adpressed bristles: *teeth short* triangular, limb of the cor. flat longer than the tube, *lobes slightly emarginate, pubescence of the st. spreading.*—*E. B.* 1973. *St.* 42. 2.—L. bluntish, apiculate. St. angular from the prominent decurrent line from the margins of the leaves. Clusters quite leafless. Cor. large, bright blue with a yellow eye. Style about as long as the calyx which is divided to about ⅓ of its length.—Valuable observations on this genus by Mr. Borrer will be found in *Hook. Br. Fl.* (ed. 3.) and the *Suppl. to Eng. Bot.*—Ditches and watery places. P. VI.—VIII. *Great Water Scorpion grass. Forget-me-not.*

2. *M. repens* (Don); cal. open when in fr. and shorter than the pedicel with straight adpressed bristles: *teeth narrow lanceolate* acute, limb of the cor. flat longer than tube, *lobes slightly emarginate, pubescence of the st. spreading.*—*E. B. S.* 2703. *St.* 42. 4. *M. secunda* Murr. North. Fl. 115.—L. rather acute. St. slightly angular. Clusters usually slightly leafy (1—4 leaves) below. Cor. pale blue. Style shorter than the cal. which is divided fully half-way down.—Boggy places. P. VI.—VIII.

3. *M. cæspitosa* (Schultz!); cal. open when in fruit shorter than the pedicel with straight adpressed bristles: *teeth narrow lanceolate* bluntish, *limb of the cor. equalling the tube, lobes entire, pubescence of the st. adpressed.*—*E. B. S.* 2661. *St.* 42. 7.—L. usually obtuse or even emarginate. St. round, "with an impressed decurrent line from the margin of the leaves." Clusters usually slightly leafy below. Cor. smaller than in the preceding, bright blue, segments narrower and rounded at the end. Style very short, about as long as the tube of the calyx.—Watery places. P. VI.—VIII.

4. *M. suaveolens* (Kit.); *cal. attenuated below* deeply 5-cleft open when in fruit shorter than the ascending pedicel with straight and a few curved adpressed bristles, *limb of the cor. longer than the tube* flat, *root-l. on long stalks pointed.*—*St.* 42. 8. *M. rupincola* Sm. *E. B.* 2559. *M. alpestris* Sm., Borr.—L. oblong-lanceolate, stalks of the lower ones slender. Fl. large,

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handsome, blue. Style fully half as long as the calyx.—*M. alpestris* (Schm.) has blunt roundish or oblong-oval root-leaves and is probably a mountain form of *M. sylvatica*.—Summits of the Breadalbane mountains. P. VII. VIII. S.

5. *M. sylvatica* (Ehrh.); *cal. rounded below deeply* 5-*cleft closed when in fruit* shorter than the divergent pedicel: tube with spreading hooked bristles, *limb of the cor. longer than the tube flat, root-l.* on short dilated stalks *bluntish*.—*E. B. S.* 2630. St. 42. 6.—L. oblong-lanceolate, stalks of the oblong-ovate lower l. dilated. Fl. large, handsome, blue. Style usually as long as the calyx which is divided more than half-way down. Shady places. P. VI. VII.

6. *M. arvensis* (Hoffm.); *cal. half* 5-*cleft* closed when in fruit shorter than the divergent pedicel: tube with spreading hooked bristles, *limb of the cor. equalling the tube concave*, clusters stalked. —*E. B. S.* 2629. *St.* 42. 13. *M. intermedia* Link, Reich., Koch. —L. oblong, acute; lower l. oblong-obovate, obtuse. Fl. small. Style very short.—Cultivated land and thickets. A. VI.—VIII. *Field Scorpion grass.*

** *Fugaces.*

7. *M. collina* (Hoffm.); *cal. open and ventricose when in fruit* as long as the diverging pedicels: tube with spreading hooked bristles, limb of the cor. shorter than the tube concave, clusters stalked usually with 1 distant flower, hairs on the l. straight. —*E. B.* 2558. *St.* 42. 11. *M. hispida* Koch.—L. oblong, obtuse, lower obovate, with straight silky hairs on both sides. Fl. small, blue. Style about half as long as the calyx.—*M. stricta* Link, *M. arvensis* R. *St.* 42. 14. has its cal. closed in fruit with very short pedicels, sessile clusters leafy below, l. with hooked hairs beneath. It is probably a native of Britain and will reward some careful observer.—Dry banks. A. IV. V.

8. *M. versicolor* (Ehrh.); *cal. closed and oblong when in fruit* longer than the ascending pedicels: tube with spreading hooked bristles, limb of the cor. shorter than the tube concave, clusters stalked.—*E. B.* 480. (left fig.) *St.* 42. 12.—L. narrow, oblong, acutish, upper ones frequently opposite. Fl. small, at first pale yellow, afterwards blue. Style elongated.—Meadows and banks. A. V. VI.

Order LVI. SOLANEÆ.

Cal. inferior, 5- rarely 4-parted, persistent. Cor. hypogynous, regular or slightly irregular, 5-cleft, deciduous. Stam. inserted on the corolla. Ovary 2-celled. Stigma simple. Pericarp 2—4-celled. Seeds numerous. Embryo usually curved, in fleshy albumen.

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1 SOLANUM. *Cor. rotate*: *limb* 5-cleft, *reflexed*, plaited, regular. Anth. erect, connivent, opening by 2 pores at the apex. Berry roundish with 2 or more cells.

2. ATROPA. *Cor. bellshaped* with a short tube and 5 equal lobes. Stam. distant above. Berry globose, 2-celled.

3. HYOSCYAMUS. *Cor. funnelshaped with* a short tube and 5 *unequal* obtuse *lobes*. Anth. bursting longitudinally. Stigma capitate. *Caps.* 2-*celled*, ventricose below, furrowed, *opening transversely* by a convex lid.

4. DATURA. Cor. funnelshaped, angular, plaited, 5-lobed. Cal. deciduous. Anth. bursting longitudinally. Stigma 2-lobed. *Caps.* 4-*valved*, *with* 2 *partially bipartite cells.*

5. VERBASCUM. *Cor. rotate*: *limb spreading*, 5-cleft, unequal or irregular. Stam. 5, unequal, 2 or more hairy at the base. *Anth. transversely or obliquely adnate, by confluence* 1-*celled*. Caps. 2-celled, 2-valved, the valves slightly bifid.

1. SOLANUM *Linn.*

1. *S. nigrum* (L.); *st. herbaceous* with tubercled angles, l. ovate obtusely dentate or wavy, fl. drooping, hairs incurved upwards. —*E. B.* 566. *St.* 1. 4.—Umbel from the intermediate spaces between the leaves. L. attenuated below. Fr.-stalks thickened upwards. Berries globular, black, or nearly green when ripe. St. a foot or more high.—*β. miniatum*; angles of the st. with prominent tubercles, l. sinuate-dentate. Closely allied to this species but differs by its more deeply toothed l. which are less attenuated below, its patent (?) pubescence and red berries. *S. miniatum* Bernh.? *R. Icon.* f. 1327.?—Waste ground. *β.* Jersey. A. VII.—X. *Black Nightshade.*

2. *S. Dulcamara* (L.); *st. shrubby* zigzag, l. cordate-ovate, *upper l. auriculate-hastate*, fl. drooping.—*E. B.* 565. *St.* 18. 3.—Fl. purple with 2 green spots at the base of each segment. Berries ovate, red. St. climbing to the height of 12—14 feet, nearly round, almost glabrous throughout.—*β. tomentosum* (Koch); st. and l. downy with patent hairs.—*γ. marinum*; branches of the present year and l. fleshy and usually clothed with hairs incurved upwards, st. angular prostrate diffuse much branched, l. all (?) cordate not hastate. This is the *S. lignosum seu Dulcamara marina* Ray 265, and appears, as far as I can judge from dry specimens, to have a more deeply divided cal. with rounded blunt segments. Is it not a distinct species?—*α.* and *β.* woods and hedges, common. *γ.* pebbly sea-beach at Renville, Cunnamara, Galway, and the Lizard Point, Cornwall. Sh. VI. VII. *Woody Nightshade. Bitter sweet.*

2. ATROPA *Linn.*

1. *A. Belladonna* (L.); st. herbaceous, l. broadly ovate entire,

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fl. solitary axillary on short stalks.—*E. B.* 592. *St.* 3. 5.—Fl. lurid, purple, drooping. Berry violet-black, highly poisonous.—Waste places, less common than formerly. P. VI.—VIII. *Deadly Nightshade. Dwale.*

3. Hyoscyamus *Linn.*

1. *H. niger* (L.); l. oblong pinnatifid or sinuate sessile and subamplexicaule, lower l. stalked, fl. nearly sessile axillary unilateral—*E. B.* 591. *St.* 3. 4.—Fl. lurid yellow, with dark veins, drooping. Fr. erect. Whole herbage downy, glandular, viscid, fetid.—Waste places, preferring a chalky soil. A. or B. V.—VII. *Henbane.*

4. Datura *Linn.*

†1. *D. Stramonium* (L.); l. ovate unequally sinuate-dentate glabrous, caps. erect spinose.—*E. B.* 549.—L. white, large, erect. Fr. densely spinose. Caps. with 4 dissepiments below of which only 2 reach to the summit.—Waste ground, rare. A. VI. VII. *Thorn-apple.* E. S.? I.?

5. Verbascum *Linn.*

* *Leaves strongly decurrent.*

1. *V. Thapsus* (L.?); l. ovate-oblong crenate densely woolly on both sides all decurrent, st. simple, spike dense, pedicels shorter than the calyx, cor. rotate: segments oblong obtuse, filaments woolly: 2 longer nearly glabrous, anth. all nearly equal.—*E. B.* 549. *V. Schraderi* Koch.—St. 4—5 feet high. Fl. about twice as long as the calyx. Filaments with white wool, the 2 glabrous ones about 4 times as long as their slightly decurrent anthers.—Waste ground. B. VII. VIII. *Great Mullein.*

2. *V. Thapsiforme* (Schr.); "l. decurrent crenulate woolly, upper ones acuminate, raceme spiked, segments of the cor. unequal obovate, 2 of the anth. oblong." *Fries.*—*V. Thapsus* Koch.—Fl. much larger than those of *V. Thapsus*, about 4 times as long as the calyx. "The 2 glabrous filaments scarcely twice as long as their greatly decurrent anthers." *Koch.*—Kent. *Dr. Lindley.* B. VII. VIII. E.

[*V. phlomoides* (L.), which differs from the above by having its l. scarcely decurrent, has occurred (introduced) in Sussex.]

** *Leaves not decurrent, flowers in clusters.*

† Flowers yellow, hairs on the filaments white.

3. *V. Lychnitis* (L.); *l.* crenate *nearly glabrous above* woolly and powdery beneath, lower l. elliptic-oblong wedgeshaped below stalked, upper l. sessile ovate-acuminate with a rounded base, st. angular panicled above with ascending branches, stam. equal,

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filaments all with white hairs.—*E. B.* 58.—Fl. on short stalks, small, numerous, cream-coloured.—Road-sides and waste places, preferring chalk. B. VII. VIII. *White Mullein.* E.

4. *V. floccosum* (W. and K.); *l.* obscurely crenate clothed *with mealy deciduous wool on both sides*, lower l. oblong-elliptical attenuated into a stalk, upper l. sessile acuminate, st. terete panicled above with patent branches, stam. nearly equal scarlet with white hairs.—*V. pulverulentum* Sm.—*E. B.* 487.—Fl. on very short stalks which, as well as the calyx, are densely covered with wool, bright yellow. Cal.-teeth often glabrous.—In *V. pulverulentum* (Vill.), of which Schreber saw authentic specimens, the stem l. are subsessile ovate-oblong rather acute unequally and doubly serrate, the upper surface of all the leaves only slightly woolly, the wool is not deciduous as in our plant, and the st. and branches are angular.—Road-sides in Norf. and Suff.; and Den of Cullen, Scotland. B. VII. *Hoary Mullein.* E. S.

†† Flowers yellow, hairs on the filaments purple.

5. *V. nigrum* (L.); l. doubly crenate nearly glabrous above subpubescent beneath, lower l. cordate or ovate-oblong with long stalks, upper l. cordate-ovate nearly sessile, st. angular, racème elongated, pedicels twice as long as the calyx, stam. equal with purple hairs.—*E. B.* 59.—Fl. in clusters on a nearly simple long spike, small, bright yellow.—*β. tomentosum* (Bab.); l. subpubescent above woolly beneath, fl. smaller.—*γ. nigro-lychnitis*; lower l. ovate-oblong or lanceolate attenuated into a stalk subpubescent above downy beneath.—Banks and way-sides. *β.* Alderney. *γ.* Sussex. P. VII. VIII. *Dark Mullein.* E. S.

*** *Leaves all decurrent, flowers solitary or in pairs.*

6. *V. Blattaria* (L.); l. crenate glabrous, lower l. ovate-oblong obtuse sinuate at the base attenuated, upper l. oblong or subcordate semiamplexicaule, *pedicels solitary nearly twice as long* as the bract, stam. and anth. unequal.—*E. B.* 393.—Panicle glandular pilose. Fl. yellow. Filaments with purple hairs, the 2 longer hairy only on the inside.—On gravelly banks, rare. B. VIII. *Moth Mullein.* E.

7. *V. virgatum* (With.); l. doubly serrate slightly glandular-hairy, lower l. oblong-lanceolate sublyrate lobate-crenate-serrate the base attenuated, upper l. oblong acuminate semiamplexicaule, *pedicels* 1—5 *together shorter than the bracts*, stam. nearly equal. —*E. B.* 550.—Panicle glandular-pilose. Fl. yellow. Filaments with purple hairs, 2 rather longer and hairy only within.—On gravelly banks, rare. B. VIII. E. I.

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Order LVII. OROBANCHEÆ.

Cal. variously divided, persistent. Cor. irregular, usually 2-lipped, imbricate. Stam. on the cor. 4, didynamous. Ovary in a fleshy disk, 1-celled, with 2 or more parietal placentas. Stigma 2-lobed. Fr. capsular, 2-valved, many-seeded.

1. OROBANCHE. Cal. 4-cleft or of 2 usually bifid sepals. Cor. ringent, 4—5-cleft, deciduous, its base persistent. Bracts 1—3.

2. LATHRÆA. Cor. 2-lipped, the upper lip galeate, deciduous, entire. Otherwise like *Orobanche*.

1. OROBANCHE *Linn.*

* *Sepals 2, entire or bifid, separate or connected below in front. Bract 1.*

1. *O. major* (L.); sep. 2-nerved equally bifid nearly as long as the tube of the corolla, cor. bellshaped ventricose at the base in front arcuate, lips wavy obsoletely denticulated (not fringed), upper lip helmetshaped scarcely emarginate: sides patent, middle lobe of the lower lip much longer than the lateral lobes, *stam. inserted at the base of the cor.* glabrous below their upper part and the style glandular-pubescent.—*E. B.* 421. *R. Icon.* f. 900 and 923. *O. Rapum* Koch.—*Stigma distantly bilobed, yellow.* Anth. white when dry. For a full description from fresh specimens see *Leight. Fl. Shrop.* 302.—Parasitical upon Broom, Furze and other shrubby leguminous plants. P. VI. VII. *Greater Broom-rape.*

2. *O. rubra* (Sm.); sep. 1-nerved lanceolate subulate-attenuated longer than the tube of the cor. undivided, *cor.* bellshaped arcuate *glandular-pubescent externally and the upper lip internally, lips acutely denticulated* and crisped, upper lip emarginate: sides patent, lobes of the lower lip nearly equal intermediate lobe rather longer, *stam. inserted near to the base of the corolla* slightly pilose within below, their apex and the upper part of the style slightly glandular-pilose.—*E. B.* 1786 (bad). *R. Icon.* f. 885. *O. epithymum* DC. ?, Koch ?—*Stigma approximately 2-lobed, pale red.* Anth. fuscous when dry. Sep. with a second faint nerve near their anterior margin and, in the dry plant, there is the appearance of several more. L. few. Sweet-scented.—Description drawn from fresh Cornish specimens.—Parasitical upon *Thymus Serpyllum.* P. VII. VIII.

3. *O. caryophyllea* (Sm.); sep. many-nerved (?) lanceolate equally bifid shorter (?) than the tube of the cor. distinct or combined in front, *cor. tubular-bellshaped curved on the back,* lips spreading, upper one 2-lobed: lobes porrect, lobes of the lower lip nearly equal rounded wavy, *stam. inserted above the base of*

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the cor. hairy within below, above together with the style glandular-pilose.—*E. B. S.* 2639. *O. Galii* Duby, Koch.—*Stigma dark purple* approximately bilobed. Anth. purple, yellow when dry. —I have not seen fresh specimens.—On *Galium Mollugo* in Kent. P. VII. E.

4. *O. elatior* (Sutt.); sep. many-nerved equally bifid as long as the tube of the cor. connected in front, *cor. curved tubular slightly compressed above, upper lip 2-lobed toothed: lobes inflexed,* lower lip of 3 nearly equal acute lobes toothed, stam. inserted above the base of the cor. glandular-hairy in the lower half within.—*E. B.* 568.—*Stigma* bilobed *yellow.* Upper lip of the cor. usually with an elevated point between the lobes. Cor. glandular externally. The stam. sometimes have a few hairs on upper half. Anth. whitish when dry. Stem 2—3 feet high.—Parasitical upon *Centaurea Scabiosa,* rare. P. ? VI. E.

5. *O. barbata* (Poir.); sep. 1-nerved ovate below suddenly contracted into 1 or 2 subulate points nearly or quite as long as the tube of the cor., cor. tubular arcuate, lips denticulated wavy, upper one bilobed porrect, lobes of the lower lip nearly equal the *middle one longest,* stam. inserted near to the base of the cor. glabrous with a few scattered hairs on their lower part, style glabrous with a few hairs on the upper part, stigma scarcely bilobed.—*E. B. S.* 2859. *O. Hederæ* Duby.—Lobes of the *stigma* attached together by at least ¼ of their circumference, *yellow.* Anth. fuscous, rather paler when dry. St. purplish.—In speaking of this plant, which he is not prepared to admit, Sir W. J. Hooker justly observes that the British species "need a careful revision with the aid of living specimens."—Parasitical upon Ivy. P. VII. E. I.

6. *O. minor* (Sutt.); *sep. many-nerved* ovate below suddenly contracted into 1 or 2 subulate points as long or longer than the tube of the cor., cor. tubular arcuate the lips obtusely denticulated wavy, upper one bilobed porrect, *lobes of the lower lip equal,* stam. inserted below the middle of the cor. glabrous with a few scattered hairs below, style glabrous with a line of distant hairs on its anterior side, *stigma bilobed.*—*E. B.* 422.—*Stigma approximately lobed*: lobes only just touching at one point, *purple.* Anth. yellow when dry.—Parasitical upon *Trifolium pratense.* A. ? VI. VII.

** *Sep.* 4 *or* 5, *connected below. Bracts* 3.

7. *O. cærulea* (Vill. ?); cal. of 5 sep. tubular with triangular-subulate teeth shorter than the tube of the cor., cor. tubular slightly curved in front, the middle of the tube compressed on the back, throat slightly inflated externally glandular, lobes of the lips obtuse with reflexed margins, lower lip hairy within, suture of the anth. hairy.—*E. B.* 423. ?—Stigma scarcely 2-lobed, style

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glandular. Filaments glabrous with a few hairs at their base. Lateral bracts linear-subulate, intermediate lanceolate attenuated above. St., scales, and cal. glandular-pubescent.—Differs from *O. cærulea* of Koch by having the lobes of its lips obtuse with a reflexed margin and by the hairs on its anthers. I have not seen English specimens. Mine are from Jersey.—Parasitical upon *Achillæa Millefolium*? very rare. P. VII. VIII. E.

8. *O. ramosa* (L.); cal. of 4 sep. tubular with triangular ovate acuminate teeth, anth. glabrous, st. branched.—*E. B.* 184.—I have not seen living specimens.—This plant and the preceding belong to the genus *Phelipæa* of some authors and are distinguished from the true species of *Orobanche* by their tubular tribracteate cal. and caps. bursting at the top not the side.

2. LATHRÆA *Linn.*

1. *L. squamaria* (L.); st. simple, fl. pendulous secund, lower lip of the cor. 3-cleft.—*E. B.* 50. *G. E. Smith S. Kent.* t. 3.—Bracts ovate or lanceolate. Style straight or curved. Upper lip nearly entire, or bifid.—Woods and thickets, parasitical upon Hazels, &c. P. IV. V.

Order LVIII. SCROPHULARINEÆ.

Cal. 4—5-cleft, persistent. Cor. irregular or 2-lipped or personate, imbricate. Stam. on the cor., usually 4, didynamous. Ovary free, 2-celled. Style simple; stigma 2-lobed. Fr. capsular, 2-celled; placenta central. Seed albumen oleous

* *Stamens* 4, *didynamous.*

1. DIGITALIS. Cal. in 5 deep segments. Cor. bellshaped, oblique, 4—5-fid.

2. ANTIRRHINUM. Cal. 5-parted. *Cor. personate,* gibbous at the base (no distinct spur); lower lip 3-fid with a prominent palate closing the mouth. Caps. opening by 2 or 3 pores at the top, 2-celled.

3. LINARIA. Cal. 5-parted. *Cor. personate, spurred*; lower lip 3-fid, with a prominent palate closing the mouth. Caps. opening by valves or teeth at the top, 2-celled.

4. SCROPHULARIA. Cal. 5-lobed (in *S. vernalis* 5-cleft). *Cor. globose*; limb minute, of 2 short lips, upper 2-lobed, lower 3-lobed. Often the rudiment of a fifth stamen. Caps. opening by 2 valves with their margins inflexed, 2-celled.

5. LIMOSELLA. Cal. 5-cleft. *Cor.* 5-fid, *bellshaped,* equal. Caps. globose, 2-valved, placenta central, free or connected with a short dissepiment below, 1-celled.

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6. MELAMPYRUM. *Cal. tubular,* 4-toothed. Cor. ringent; upper lip compressed laterally with reflexed margins; lower furrowed, 3-fid. Caps. oblong, obliquely acuminate, compressed. *Seeds* 1—2 *in each cell, smooth.*

7. PEDICULARIS. *Cal. inflated,* 5-toothed. Cor. ringent; upper lip compressed laterally; lower plane, 3-lobed. *Caps.* compressed, *acute. Seeds numerous,* angular.

8. RHINANTHUS. *Cal.* inflated, 4-*toothed.* Cor. ringent; upper lip compressed laterally; lower plane, 3-lobed. *Caps.* compressed, *obtuse. Seeds* numerous, *compressed, with an orbicular margin.*

9. BARTSIA. *Cal. bellshaped,* 4-fid. Cor. tubular, ringent. *Caps. pointed,* cells many-seeded. *Seeds compressed at the hilum and with winged ribs on the back* (large).

10. TRIXAGO. Cal. tubular, 4-cleft. Cor. tubular, 2-lipped. Caps. pointed, cells many-seeded. *Seeds slightly angular, very minutely crenate-ribbed, hilum basal.*

11. EUPHRASIA. Cal. tubular or bellshaped, 4-fid or 4-toothed. Cor. tubular, 2-lipped. *Caps. obtuse or emarginate,* cells many-seeded. *Seeds* rather angular, *longitudinally ribbed, hilum subapical.*

12. SIBTHORPIA. Cal. in 5 deep spreading segments. *Cor. rotate, irregularly* 5-*cleft.* Caps. compressed, orbicular, 2-seeded, 2-valved.

** *Stamens* 2.

13. VERONICA. Cal. 4—5-parted. Cor. rotate, unequally 4-lobed, lower lobe the smallest. Caps. compressed, 2-celled.

1. DIGITALIS *Linn.*

1. *D. purpurea* (L.); l. ovate-lanceolate crenate downy beneath, lower l. attenuated into a footstalk, sep. ovate-oblong acute 3-nerved downy, cor. obtuse glabrous externally, upper lip scarcely cloven, segments of the lower lip ovate rounded.—*E. B.* 1297. *St.* 11.—L. often crenate-dentate or -serrate. Fl. sometimes white or flesh-coloured. St. 3—4 feet high.—Hedge-banks and woods. P. VI.—VIII. *Foxglove.*

2. ANTIRRHINUM *Linn.*

*1. *A. majus* (L.); l. lanceolate opposite or alternate glabrous, fl. racemose, *sep. ovate* obtuse much shorter than the cor., upper lip bifid.—*E. B.* 129.—Height 1—2 feet. Cor. 1½ in. long, purplish-red or white.—Old walls and chalk cliffs. P. VII.—IX. *Great Snapdragon.*

2. *A. Orontium* (L.); l. linear-lanceolate opposite or alternate,

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fl. loosely spiked distant, *sep. linear longer* than *the corolla.*—*E. B.* 1155. *St.* 27.—About a foot high. Fl. purple.—Dry sandy and gravelly fields. A. VII. VIII. E. I.

3. LINARIA *Mill.*

*1. *L. Cymbalaria* (Mill.); l. roundish-heartshaped 5 lobed glabrous, st. procumbent.—*E. B.* 502. *St.* 70. 10.—Stems slender, rooting. Fl. solitary, axillary, upon long stalks, pale blue.—Old walls. V.—X. *Ivy-leaved Toadflax.*

2. *L. Elatine* (Mill.); *l. ovate-hastate,* lower l. ovate, *spur straight,* peduncles glabrous, st. procumbent.—*E. B.* 692. *St.* 70. 11.—Fl. solitary, axillary, upon long slender stalks, small, yellow, with the upper lip purple.—Gravelly and chalky corn-fields. A. VII.—IX. E. I.

3. *L. spuria* (Mill.); *l. roundish-ovate entire, spur curved* upwards, peduncles hairy, st. procumbent.—*E. B.* 691. *St.* 70. 12.—Fl. similar to the last but larger. L. with here and there a small tooth.—In both this species and the preceding some of the fl. are often regular with 5 spurs or partially so with 2, 3, or 4.—Gravelly and sandy corn-fields. A. VII.—IX. E.

4. *L. minor* (Desf.); *l. linear-lanceolate* obtuse glanular-pubescent mostly alternate, *fl. solitary* axillary, peduncles 3 times as long as the calyx, segments of the upper lip diverging, seeds oblong sulcate.—*E. B.* 2014. *St.* 70. 15.—Fl. small, with the tube, upper lip, and spur of the cor. purplish, lower lip yellowish. St. erect, 4—10 in. high, branched, glandular-pubescent.—Sandy fields. A. VI.—VIII.

5. *L. pelisseriana* (Mill.); wholly glabrous, l. linear the lower ternate or quaternate upper alternate, sterile branches radical prostrate with ternate lanceolate or ovate l., *fl. racemose,* peduncles as long as the bracts, sepals linear acute twice as long as the capsule, seeds discoidal with a fimbriated wing smooth externally tubercular within.—*E. B. S.* 2832.—Fl. purple with darker veins. St. one or more from each root, erect, about a foot high. Caps. bilobed.—Jersey. A. VI. O.

[Mr. Borrer finds near Guildford, apparently indigenous, *L. simplex* (DC.) which differs from the preceding and following species by having—glandular-hairy cal. peduncles and rachis, peduncles shorter than the bracts, sep. obtuse not longer than the caps. and seeds discoidal. He hopes to be enabled shortly to determine its claims more satisfactorily. A. VI.—IX.]

6. *L. repens* (Ait.); glabrous, l. linear scattered or partly whorled, fl. racemose, *sep. lanceolate* as long as the spur but shorter than the caps., *seeds angular with transverse elevated lines,*—*E. B.* 1253. L. striata *DC., Koch, R. Icon.* t. 423.—"Fl. bluish."

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St. erect, branched, leafy, 1—1½ foot high, slender. Seeds much smaller than those of *L. vulgaris* or *L. italica*.—Calcareous soils, particularly near the sea, rare. P. VII.—IX.

7. *L. italica* (Trev.); glabrous, *l. scattered* linear-lanceolate, fl. racemose, *sep. lanceolate-oblong* acuminate shorter than the caps. and the spur, *seeds orbicular tubercular-scabrous with a membranous margin.*—*R. Icon.* t. 421. L. geniastifolia *DC.*, not *Mill.* A. Bauhinii *Gaud.* See *Lond. Journ. Bot.* i. 79.—Fl. yellow, intermediate in size between those of *L. repens* and *L. vulgaris*. St. erect, branched, leafy. Quite glabrous. In Cornish specimens the seeds are rather angular, producing a winged ridge upon their convex side.—Banks. Shirley near Southampton; Penryn by the road to Truro; by the river Bandon near Cork. P. VIII. IX. E. I.

8. *L. vulgaris* (Mill.); glabrous, rachis and peduncles glandular-hairy, l. linear-lanceolate scattered crowded, fl. racemose imbricated, *sep. ovate acute glabrous* shorter than the caps. and the spur, seeds orbicular tubercular-scabrous with a membranous margin.—*E. B.* 658. *St.* 18. 13.—Fl. yellow, large. St. erect, 2 feet high, as well as the l. glabrous. Common and partial flowerstalks usually glandular-pubescent.—The var. *Peloria* with 5 spurs and an equal and regular cor. is sometimes, though rarely, found. *E. B.* 260.—Hedges on a gravelly soil. P. VI. VII. *Yellow Toadflax.*

[*L. purpurea* (Mill.) is said to be indigenous, but I know nothing of it.]

4. SCROPHULARIA *Linn.*

1. *S. nodosa* (L.); *l.* ovate acute subcordate glabrous *deeply and acutely serrate*: *lower serratures largest*, st. acutely 4-angular, cymes lax, sep. roundish-ovate with a narrow membranous margin, *staminodium transversely oblong slightly emarginate.*—*E. B.* 1544. *St.* 23. 14.—Root tuberous, thick, knotty. St. 2—3 feet high. Bracts small, lanceolate, acute. Fl. greenish-purple, lurid, sometimes milk-white. Caps. ovate.—Moist hedges and thickets. P. VI. VII. *Knotted Figwort.*

[The abortive fifth stamen (staminodium), which usually appears under the form of a scale on the inner side of the upper lip of the cor., supplies a valuable distinctive character in this genus.]

2. *S. Ehrharti* (C. A. Stev.); *l.* ovate-lanceolate acute subcordate glabrous *serrate*: *lower serratures smaller*, st. and petioles winged, *cymes lax* few (4—8)-*flowered*, sep. roundish with a broad membranous margin, *staminodium bifid with diverging lobes.*—*Stev. Ann. Nat. Hist.* v. 1. t. 1. S. aquatica *St.* 23. 15, *Koch.*—St. tall. *Bracts foliaceous*, lanceolate, acute. Fl. dark purple. Caps. subglobose, obtuse.—Wet places. Cramond Bridge, Edin-

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burgh. Berwick. *Dr. P. Maclagan.* Preston. *Mr. Gilbertson.* Wilmingdon, Suss. *Mr. Jenner.* Primrose Hill, London. *Mr. Sowerby.* P. VIII. IX. E. S.

3. *S. aquatica* (L.); *l.* cordate-oblong rounded-obtuse glabrous *crenate-serrate,* st. and petioles winged, *cymes dense corymbose many* (8—15)*-flowered,* sep. roundish obtuse with a broad membranous margin, *staminodium roundish-reniform entire.—E. B.* 854. *Stev. l. c.* t. 1. S. Balbisii *Horn., Koch.*—St. 2—5 feet high. *Bracts linear, obtuse.* Fl. dark purple, occasionally milk-white. Caps. ovate, pointed.—In wet places. P. VII. VIII.

4. *S. Scorodenia* (L.); *l.* cordate-triangular *with large double serratures downy on both sides,* st. bluntly quadrangular downy, cymes lax few-flowered, sep. roundish downy with a membranous margin, staminodium roundish entire.—*E. B.* 2209.—St. 2—3 feet high. *Bracts foliaceous,* lower exactly like the leaves. Fl. purple. Caps. ovate, acute.—West of Cornwall. Tralee, Kerry. Jersey. In moist places. P. VII. E. I.

5. *S. vernalis* (L.); *l. downy* cordate-acute doubly serrate, st. winged hairy, *cymes axillary* corymbose with leafy bracts, sep. oblong with a recurved apex, *staminodium* 0.—*E. B.* 567.—St. 23. 16.—St. about 2 feet high. *Fl. yellow, inflated,* their mouth much contracted. Caps. ovate, acute. Differing greatly from the other species and closely allied in appearance to some of the *Calceolarias* as is well observed by Sir J. E. Smith.—Waste places, rare. P. IV. V. E. S.

5. LIMOSELLA *Linn.*

1. *L. aquatica* (L.); l. lanceolate spathulate on long stalks, peduncles axillary crowded shorter than the petioles.—*E. B.* 357. *St.* 30. 15.—St. 0, except the naked scions which produce new plants. Fl. small, white, or rose-coloured. Caps. minute, ovate.—Muddy places where water has stagnated. A. VII.—IX. *Mudwort.* E. S.

6. MELAMPYRUM *Linn.*

1. *M. cristatum* (L.); *spikes densely imbricated 4-sided, bracts heartshaped* acuminate deeply incised lower ones with a long leafy recurved point.—*E. B.* 41.—Bracts ciliated, rose-coloured at the base. Fl. yellow, tinged with purple. L. linear-lanceolate, acute, entire, with dark netted veins beneath.—Woods and thickets in the eastern counties. A. VII. *Crested Cow-wheat.* E.

2. *M. arvense* (L.); *spikes lax conical, bracts ovate-lanceolate-attenuated* pinnatifid with subulate segments and with a few large glandular elevated points beneath, cal. hispid as long as the tube of the cor. with elongate-lanceolate-attenuated teeth from an ovate base, cor. closed.—*E. B.* 53 (bad).—Bracts purple-rose-colour. Fl. yellow variegated with rose-colour and purple. L.

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linear-lanceolate, acute, rough-edged, slightly downy on both sides, entire.—Corn-fields and dry banks in Norf. and the Isle of Wight. A. VII. *Purple Cow-wheat.* E.

3. *M. pratense* (L.); *fl. axillary secund in distant pairs,* upper bracts with 1 or 2 teeth at the base, *cor.* 4 times as long as the glabrous calyx *closed*: *upper lip protruded*—*E. B.* 113.—Teeth and tube of the cal. about equal in length. L. lanceolate, entire, glabrous. Fl. large, pale yellow.—*β. montanum*; smaller in all its parts, bracts quite entire, l. linear-lanceolate hispid, the 2 lowest obovate-lanceolate, st. with an alternate hairy line. *M. montanum* Johnst. Fl. Berw., *M. alpestre* Pers. according to a specimen from Dr. Radius in the *Camb. Herb.* Is it distinct?—*γ. latifolium*; bracts with diverging teeth at the base, l. hispid ovate-lanceolate, upper l. broadly cordate-ovate-attenuate, st. with an alternate hairy line. *M. commutatum* Tausch, according to Mr. Borrer, but it does not agree with my authentic specimen. Is it distinct?—Woods and thickets. *β.* Mountains. *γ.* Banks of the Wye below Monmouth. *Mr. Borrer.* A. VI.—VIII.

4. *M. sylvaticum* (L.); fl. axillary secund in distant pairs, bracts all entire linear-lanceolate, *cor.* about twice as long as the glabrous calyx *open*: *lips equal* in length.—*E. B.* 804.—Teeth of the cal. longer than the tube. L. linear-lanceolate, entire. Fl. small, half the size of the last, deep yellow.—Alpine woods. A. VII.

7. PEDICULARIS *Linn.*

1. *P. palustris* (L.); *st. solitary erect branched throughout,* l. pinnatifid: segments oblong blunt lobed, *cal. ovate pubescent 2-lobed*: lobes inciso-dentate crisped.—*E. B.* 399.—Upper lip of the cor. with a short truncate beak with a triangular tooth on each side. Fl. large, crimson. St. 12—18 in. high, angular, with alternate branches. Crown of the root with a whorl of ovate-acute scales.—Marshy and boggy places. A.? V.—VII. *Marsh Louse-wort. Red Rattle.*

2. *P. sylvatica* (L.); *st. branched at the base erect, branches long spreading* prostrate, l. pinnatifid, segments ovate lobed, *cal. oblong glabrous* irregularly 5-lobed, upper lobe lanceolate, other lobes with 3 leafy divisions.—*E. B.* 400. *St.* 13. 14.—Upper lip of the cor. as in the last. Fl. large, rose-colour. Primary st. erect, often very short, branches prostrate. Crown of the root with a whorl of ovate-lanceolate crenate undivided reflexed leaves.—Wet heathy and rather hilly pastures. A.? V.—VIII.

8. RHINANTHUS *Linn.*

1. *R. Crista-galli* (L.); l. oblong-lanceolate serrate, fl. in lax spikes, cal. glabrous, *lobes of the upper lip of the cor. short roundish,* bracts ovate inciso-serrate, seeds with a broad mem-

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branous border.—*E. B.* 657. *R. Icon.*! f. 974.—Lateral lobes of the upper lip of the cor. very blunt, shorter than broad, bluish. Bracts green throughout, nectary ovate. St. 1—2 feet high.—Meadows and pastures. A. VI. *Yellow Rattle.*

2. *R. major* (Ehrh.? Sm.); l. linear-lanceolate serrate, fl. in crowded spikes, cal. glabrous, *lobes of the upper lip of the cor. oblong*, bracts with an attenuated point inciso-serrate, seeds with a very narrow membranous border.—*E. B. S.* 2737.—Lateral lobes of the upper lip of the cor. longer than broad, purple. Bracts yellowish with green points. "Nectary heartshaped." This is the plant of Smith but not the *R. major* of Koch or Reich. which has, according to the fig. *R. Icon.* f. 975, a broad membranous margin to the seed, and the central part of the upper lip of the cor. as prominent as the lateral lobes. Which is the plant of Ehrhart? Corn-fields in the north. A. VII. E. S.

9. Bartsia *Linn.*

1. *B. alpina* (L.); l. opposite ovate slightly clasping bluntly serrate.—*E. B.* 361. *St.* 17. 15.—St. square, 4—8 in. high, simple. Root creeping. Fl. forming a short dense leafy spike, purplish-blue, downy. Cal. purplish, viscid. Anth. hairy.—Alpine pastures, rare. P. VI. VII.

10. Trixago *Stev.*

1. *T. viscosa* (R.); l. opposite, upper l. alternate ovate-lanceolate sessile acutely-serrate.—*E. B.* 1045. *Bartsia* Sm.—L. sometimes linear-lanceolate. St. round, 3—12 in. high, simple. Root fibrous. Fl. distant, axillary, upper ones crowded, yellow. Anth. hairy. St., l., and cal. viscid. If Sir J. E. Smith is correct in considering that the seeds afford good generic characters in this Order the present plant cannot be retained in *Bartsia*, and I have accordingly followed Steven in removing it from that genus.—Damp places in the west of England, south-west of Scotland, and south of Ireland. A. VII.—IX.

11. Euphrasia *Linn.*

1. *E. officinalis* (L.); l. ovate or cordate-ovate nearly sessile serrate (3—5 teeth on each side), *cor. glabrous*, lobes of the lower lip emarginate, of the upper lip patent sinuate-dentate, *anth. unequally mucronate* hairy.—*E. B.* 1416.—St. 1—8 in. high. Fl. axillary, solitary, sessile, crowded towards the ends of the branches. A peculiarly variable plant of which it is next to impossible to define the varieties, and indeed, from their inconstancy, it is scarcely desirable to do so. The l. are ovate or cordate-ovate or cordate-triangular, with the teeth acute or obtuse, ascending or spreading. The caps. varies in shape, the upper lip of the cor. in toothing, and the whole plant except the cor.

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in pubescence.—Pastures, woods, heaths. A. VII. VIII. *Eyebright.*

2. *E. Odontites* (L.); *l. narrowed from the base* opposite linear-lanceolate remotely serrate, floral-l. longer than the fl., *cor. pubescent,* lobes of the lower lip oblong-obtuse, *anth. with 2 equal points* hairy.—*E. B.* 1415.—St. about a foot high, much branched. Fl. (numerous, pink,) in leafy unilateral spikes.—Corn-fields and waste places. A. VII. VIII.

12. SIBTHORPIA *Linn.*

1. *S. europæa* (L.). The only species.—*E. B.* 649.—An elegant trailing plant with slender filiform creeping stems, and alternate long-stalked roundish reniform leaves with a few large crenations. Fl. very small, axillary, solitary, on short stalks, pinkish, inconspicuous.—Damp shady places in the south and south-west. P. VI.—IX. E. I.

13. VERONICA *Linn.*

* *Racemes axillary.* (*Root perennial.*)

1. *V. scutellata* (L.); *l. linear-lanceolate* acute sessile minutely denticulated, racemes alternate, fruitstalks reflexed, *caps. of 2 flattish orbicular lobes,* st. erect.—*E. B.* 782. *St.* 58. 3.—Root stoloniferous. St. weak, elongated. Fl. pale flesh-coloured, with darker lines. Sep. small, lanceolate, acute, shorter than the capsule.—*β. pubescens* (Koch); st. hairy. *V. Parnalaria "Poit. et Turp. fl. Par.* 19. t. 14."—In boggy places. *β.* "Shropshire." *Leighton.* "North of Scotland." *Murray.* P. VI.—VIII.

2. *V. Anagallis* (L.); *l. lanceolate serrated* acute sessile, racemes opposite, fruitstalks spreading, *caps. elliptical slightly notched,* st. erect.—*E. B.* 781.—Root stoloniferous. St. thick, hollow, varying much in height. Fl. pale blue. Sep. lanceolate, longer than the capsule. Racemes sometimes clothed with glandular hairs. Whole plant usually glabrous.—In stagnant water. P. VI.—VIII. *Water Speedwell.*

3. *V. Beccabunga* (L.); *l. stalked elliptical obtuse* crenate-serrate, racemes opposite, fruitstalks spreading, *caps. roundish* tumid slightly notched, *st. procumbent* at the base rooting.—*E. B.* 655. *St.* 12. 1.—Fl. bright blue. Whole plant glabrous.—*β. limosa*; bracts longer than the pedicels, fl. pink or flesh-coloured. *V. limosa* Lej.—Ditches and streams. *β.* Near Edinburgh. *Prof. Balfour.* P. V.—VIII. *Brooklime.*

4. *V. Chamædrys* (L.); l. nearly sessile cordate-ovate inciso-serrate, racemes opposite, fruitstalks ascending, *caps. flat obcordate deeply notched* ciliated shorter than the cal., *st. bifariously hairy* ascending.—*E. B.* 623. *St.* 58. 6.—Fl. large, numerous,

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handsome, blue. Sep. lanceolate, acute.—Hedge-banks. P. V. VI. *Germander Speedwell.*

5. *V. montana* (L.); *l. stalked* broadly ovate serrate, fruitstalks ascending, *caps. orbicular* notched their margins crenulated and ciliated *longer than the cal., st. diffuse hairy all round* procumbent.—*E. B.* 766. *St.* 58. 5.—Fl. few, pale blue. Caps. very large, quite flat. Sep. ovate-lanceolate, acute.—Woods and thickets. P. V. VI.

6. *V. officinalis* (L.); l. shortly stalked elliptical serrate, *racemes dense* many-flowered, fruitstalks erect, *caps. obcordate truncate obtusely notched* longer than the cal., st. prostrate creeping hairy.—*E. B.* 765. *St.* 58. 4.—Racemes erect, much longer than the leaves.—*β. glabra*; st., l., and calyx smooth. *V. Allionii* (Vill.) is a very different plant with obcordate acutely notched capsules and thick rigid leaves.—*γ.*? *hirsuta* (Hook.); l. ovate-lanceolate, caps. abrupt undivided. *V. hirsuta* Hopk. Much smaller than the true *V. officinalis* and probably a distinct species since it retains its characters in cultivation. I have not seen wild specimens.—Dry banks and heaths. *β.* Mountains. *γ.* Dry heath, Carrick, Ayrshire. P. VI.—VIII. *Common Speedwell.*

** *Racemes terminal, tube of the cor. longer than its own diameter.*

7. *V. spicata* (L.); l. ovate or lanceolate crenate-serrate entire at the end, lower l. obtuse stalked, *raceme spiked elongate dense*, bracts longer than the pedicels, caps. ovate emarginate with a very long style.—St. erect, branching at the base. Spike nearly always solitary. Fl. blue.—*α. vulgaris*; lower l. oblong with a wedgeshaped base. *E. B.* 2.—*β. hybrida*; lower l. ovate with a rounded or slightly cordate base. Two or three times as large as var. *α. V. hybrida* (L.) *E. B.* 673.—Rare. *α.* On chalky heaths near Newmarket and Bury. *β.* On limestone cliffs. P. VII. VIII. *Spiked Speedwell.* E.

*** *Racemes terminal, tube of the cor. very short.*

† Seeds flat.

8. *V. fruticulosa* (L.); l. elliptical or lanceolate obtuse subcrenate, lower l. smaller, *raceme glandular-pubescent* few-flowered (many-flowered *Sm.*), *caps. elliptical abrupt*: valves bifid.—*E. B.* 1028. *St.* 56. 1.—Fl. flesh-coloured. I have not seen native specimens.—Ben Cruachan. *Dr. Walker.* Ben Lawers. *Dr. R. Brown.* P. VII. S.

9. *V. saxatilis* (L.); l. elliptical serrate at about the middle, lower l. smaller, *raceme pubescent with crisped hairs not glandular* few-flowered, *caps.* ovate-*attenuated*: valves bifid.—*E. B.* 1027. *St.* 56. 2.—Fl. bright blue. St. decumbent, woody.—Exposed alpine rocks. P. VII. S.

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10. *V. alpina* (L.); l. elliptical or ovate dentate or entire, lower l. smaller, *raceme hairy with patent hairs* not glandular few-flowered, *caps. oblong-obovate emarginate* crowned with the very short persistent style.—*E. B.* 484. *St.* 56. 3.—Fl. bright blue. St. simple, except at the base, 4—6 in. high.—Summits of highland mountains. P. VII. VIII. S.

11. *V. serpyllifolia* (L.); l. ovate or elliptical slightly crenate, lower l. smaller and rounder, *raceme elongate many-flowered, caps. obcordate broader than long* crowned with the long persistent style.—*E. B.* 1075. *St.* 58. 1.—Fl. whitish with blue veins. St. rooting below, afterwards erect.—*β. humifusa* (Sm.); stems quite prostrate, racemes shorter.—*V. humifusa* Dicks.—Roadsides and damp places. *β.* Highland mountains. P. V.—VII.

12. *V. arvensis* (L.); l. cordate-ovate crenate, lower l. stalked, uppermost l. lanceolate entire resembling bracts longer than the flowers, *raceme slightly spiked many-flowered lax,* pedicels very short, *caps. obcordate* broader than long compressed ciliated on the keel.—*E. B.* 734. *St.* 58. 11.—St. ascending, sometimes even a foot long, prostrate below, at other times they do not exceed 2 in., in which case the spike commences close to the root. Fl. pale blue. Caps. smooth, with rounded lobes which are longer than the style. Seeds 12—14. Sep. lanceolate, unequal.—Gravelly and sandy places. A. IV.—VII. *Wall Speedwell.*

13. *V. verna* (L.); *l. pinnatifid,* lower l. stalked ovate serrate, upper l. lanceolate entire resembling bracts, *raceme slightly spiked many-flowered lax,* pedicels very short, caps. obcordate compressed ciliated on the keel.—*E. B.* 25. *St.* 13. 1.—St. erect, 1—3 in. high, simple, or branched in the lower part. Caps. smooth or downy, with rounded lobes. Style very short. Seeds 12—14. Sep. linear-lanceolate, unequal.—Sandy heaths near Bury, Thetford and Mildenhall, Suff. A. V. E.

†† Seeds concave.

14. *V. triphyllos* (L.); *l. fingered,* lower l. ovate entire or dentate stalked, *raceme slightly spiked lax many-flowered, pedicels longer than the calyx,* caps. obcordate compressed smooth ciliated on the keel.—*E. B.* 26. *St.* 8. 1.—St. erect with spreading branches, 4—5 in. high. Fl. deep blue. Pedicels usually longer than the leaves. Sep. oblong, obtuse. Known by its spreading st., deeply fingered l., and dark blue flowers.—Sandy fields about Bury and Mildenhall, Suff. A. IV. E.

**** *Flowers axillary, solitary; seeds concave.*

15. *V. agrestis* (L.); l. all stalked cordate-ovate inciso-serrate, *sep. oblong obtuse,* caps. of 2 turgid keeled lobes, seeds about 6 in a cell.—*E. B. S.* 2603. *St.* 58. 14. *R. Icon.* f. 440.—St. procumbent. "Stam. inserted at the very bottom of the cor." Caps.

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sometimes hairy all over, at others ciliated on the keel. L. usually longer than the peduncles. Lower part of the cor. white. —*V. opaca* (Fries) with spathulate sep. and fewer seeds is perhaps confounded with this in Britain; Koch says that its stamens are inserted much higher up the cor. than in either of its allies.—Fields and waste places. A. IV.—IX. *Green field Speedwell.*

16. *V. polita* (Fries); l. all stalked cordate-ovate inciso-serrate, *sep. broadly ovate acute,* caps. of 2 turgid lobes, seeds 8—10 in a cell.—*E. B.* 783. *St.* 58. 16. *R. Icon.* f. 404. 405. *V. didyma* "Ten." *Koch.*—St. procumbent. "Stam. inserted at the very bottom of the cor." Caps. with short dense pubescence. L. usually shorter than the peduncles. Fl. wholly blue. Referred to *V. didyma* (Ten.) by Bertoloni and Koch, but Reichenbach considers that plant as a variety of *V. opaca.*—β. *grandiflora*; cor. as large as that of *V. Buxbaumii.* Differing in no other respect from *V. polita.*—Fields and waste places. β. Berwickshire, and near Cambridge. A. IV.—IX. *Gray field Speedwell.*

*17. *V. Buxbaumii* (Ten.); l. all stalked cordate-ovate inciso-serrate, *sep. lanceolate acute, caps. of 2 divaricated lobes compressed upwards and sharply keeled,* seeds about 8 in a cell.—*E. B. S.* 2769. *St.* 56. 5. *R. Icon.* 430. 431.—St. long, procumbent. L. shorter than the peduncles. Fl. twice the size of those of the preceding, as large as those of *V. Chamædrys,* blue.—In fields and cultivated land in many places, but probably introduced with seed from the continent. A. IV.—IX.

18. *V. hederifolia* (L.); *l. with 5—7 large toothlike lobes* all stalked, sep. cordate ciliated, caps. of 2 turgid lobes, seeds 2 in each cell.—*E. B.* 784. *St.* 56. 6.—St. procumbent, fl. pale blue. —Fields and banks. A. IV.—VI. *Ivy-leaved Speedwell.*

Order LIX. LABIATÆ.

Cal. tubular, regular or 2-lipped, persistent. Cor. 2-lipped, upper lip entire or bifid, lower 3-cleft. Stam. 4, didynamous, rarely 2. Ovary free, 4-lobed. Style 1, from the base of the lobes; stigma bifid. Fr. in 1—4 small nutlike portions.

Tribe I. *MENTHOIDEÆ.* Cor. bellshaped, nearly regular, Stam. distant, straight.

1. MENTHA. Cor. 4-fid, tube very short. Cal. equal, 5-toothed. *Stam.* 4, anth.-cells parallel.

2. LYCOPUS. Cor. 4-fid, scarcely longer than the equal 5-toothed calyx. *Stam.* 2, anther-cells parallel or ultimately divergent, 2 upper stam. wanting or rudimentary.

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Tr. II. *MONARDEÆ*. Cor. 2-lipped. Stam. 2, fertile, parallel under the upper lip of the corolla.

3. Salvia. Two upper stam. wanting or rudimentary; connective filiform, elongate, with 2 diverging branches, one bearing a perfect cell the other barren. Cor. ringent. Cal. tubular, 2-lipped.

Tr. III. *SATUREINEÆ*. Cor. 2-lipped. Stam. 4, distant; cells of anth. separate, divergent; connective dilated.

4. Origanum. Stam. divergent, connective subtriangular. Upper lip of cor. straight, nearly flat; lower patent, 3-fid. *Cal. with* 5 *equal teeth* and 10—13 nerves; throat hairy. *Spikes* 4-*sided*, resembling catkins, imbricated with bracts.

5. Thymus. *Apices of stam. patent.* Anth.-cells at first nearly parallel, afterwards divergent; connective subtriangular. Upper lip of cor. straight, nearly flat; lower patent, 3-fid. *Cal.* 2-*lipped* and 10—13-nerved; throat hairy. Fl. whorled, axillary or spiked.

6. Calamintha. *Apices of stam. connivent* under the upper lip of the corolla. Anth.-cells at length divergent; connective subtriangular. Upper lip of cor. straight, nearly flat; lower patent, 3-fid. Cal. 2-lipped.

Tr. IV. *MELISSINEÆ*. Cor. 2-lipped. Stam. distant; anth.-cells connected above.

7. Melissa. Apices of stam. connivent under the upper lip of the cor. Anth.-cells divergent. *Upper lip of cor. concave*; lower patent, 3-fid. Cal. 2-lipped; upper lip flat, with 3 teeth, the lateral teeth folded at their midrib.

Tr. V. *SCUTELLARIEÆ*. Stam. approximating, parallel under the upper lip of the cor. Cal. 2-lipped, closed in fruit.

8. Scutellaria. Apices of the stam. incurved. *Filaments simple*. Anth. of the 2 longer and *inferior stam.* 1-*celled*, of the shorter and superior 2-celled. Cor. 2-lipped, upper lip concave. Cal. ultimately closed and compressed; lips entire, upper one with a concave scale on its back.

9. Prunella. Two inferior stam. longest. *Filaments bifid, one branch barren. Anth. all* 2-*celled*. Cor. ringent; upper lip concave, entire. Cal. ultimately closed and compressed; upper lip flat, truncate, 3-toothed; lower bifid.

Tr. VI. *NEPETEÆ*. Stam. approximating, parallel under the upper lip of the cor., 2 *inferior shortest*. Cal. tubular.

10. Nepeta. Anth.-cells diverging. Cor. ringent; upper lip flat, straight emarginate or bifid. Cal. 5-toothed.

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Tr. VII. *STACHYDEÆ*. Stam. approximating, parallel under the upper lip of the cor., 2 inferior longest. Cal. tubular or bellshaped, spreading in fruit.

* *Stamens longer than the tube of the corolla.*

11. MELITTIS. *Anth.* approaching in pairs and *forming a cross*, bursting longitudinally. Cor. 2-lipped; *upper lip flat*, entire, straight; lower lip with 3 rounded nearly equal lobes. Cal. membranous, bellshaped, ample, variously lobed.

12. LAMIUM. Anth. approaching in pairs; cells diverging, bursting longitudinally. Cor. 2-lipped; upper *lip arched*; lower lip 3-fid, lateral lobes minute toothlike or obsolete rarely elongated. Cal. bellshaped, 5-toothed; teeth nearly equal.—*Galeobdolon* (Huds.) has the lateral lobes of the lower lip of the cor. nearly equal to the middle one and all of them acute.

13. LEONURUS. Anth. approaching; *cells nearly parallel*, bursting longitudinally. *Upper lip of cor. nearly flat, lower with 3 obtuse lobes.* Cal. tubular, 5-toothed, 2 lower teeth rather the longest. Nuts flatly truncate.

14. GALEOPSIS. Anth. approaching in pairs; *cells opposite, bursting by 2 valves transversely.* Upper lip of cor. arched, lower lip 3-lobed with 2 teeth on its upper side, lobes unequal. Cal. tubular, 5-toothed; teeth equal or 2 upper ones longest. Nuts rounded at the end.

15. STACHYS. Anth. approaching in pairs; *cells* diverging, *bursting longitudinally.* Upper lip of cor. concave, lower of 3 unequal lobes. Cal. tubular-bellshaped with 5 equal teeth. Nuts obtuse and convex at the end.

16. BALLOTA. Anth. approximating in pairs; cells diverging, bursting longitudinally. Upper lip of the cor. erect, concave; lower 3-lobed, middle lobe cordate. *Cal. funnel-shaped* with 5 equal teeth. Nuts convex and rounded at the end.

** *Stamens included in the tube of the corolla.*

17. MARRUBIUM. *Stam. included* within the tube of the corolla. Anther-cells diverging, bursting longitudinally. Upper lip of cor. straight, erect, flattish, cloven; lower 3-lobed, middle lobe the largest. Cal. tubular; teeth nearly equal or 2 longer. *Nuts flatly truncate.*

Tr. VIII. *ADJUGOIDEÆ*. Cor. with the upper lip very short or split deeply bifid and appearing as if wanting.

18. TEUCRIUM. Stam. parallel, protruding between the deeply

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divided lobes of the upper lip of the cor., inferior longest; cells bursting longitudinally. *Cor. with the upper lip deeply bifid: lobes elongate*; lower lip 3-lobed. Cal. tubular, 5-toothed, teeth equal or the upper one larger.

19. AJUGA. Stam. parallel, protruding far beyond the upper lip of the cor., inferior longest; cells bursting longitudinally. *Cor. with the upper lip very short*, 2-lobed; lower 3-lobed, much longer than the upper. Cal. ovate-bellshaped, nearly equally 5-cleft.

Tribe I. *Menthoideæ.*

1. MENTHA *Linn.*

* *Throat of the calyx naked.*

1. *M. rotundifolia* (L.); *l. elliptic-obtuse* sessile crenate-serrate shaggy beneath, spikes linear-cylindrical dense, *bracts lanceolate.—E. B.* 446. *Sole Menth. Brit.* 3. and 4.? R.!—Cor. downy and grandular. Cal. hairy. Whorls of the spike nearly all close together.—*β. velutina*; l. cordate-elliptical clasping serrate apiculate silky. *M. velutina* Lej.!, R.! Leaves very large. —*γ. crispa*; l. subsessile deeply cut and crisped, cor. very slightly downy externally. *M. crispa* (L.) *E. B. S.* 2785.—Waste ground in damp places, not very common. *β.* Isle of Arran. S. *γ.* Langley Ford in the Cheviot Hills. P. VIII. IX. *Round-leaved Mint.* E. I.

2. *M. sylvestris* (L.); *l. ovate or lanceolate acute* sessile unequally serrate hoary beneath, spikes linear-cylindrical dense, *bracts subulate.—E. B.* 686. *Sole* 1. and 2.—Cor. downy. Cal. woolly. Whorls of the spike nearly all close together. L. sometimes not quite sessile, always acute, not apiculate, variable in form.—*β. Brittingeri*; l. ovate-lanceolate whitish-green above. *M. Brittingeri* Opitz!—Waste ground in damp places. *β.* Newton Mead near Bath. P. VIII. IX. *Horse Mint.* E.

3. *M. viridis* (L.); *l. glabrous* sessile lanceolate acute serrate, *spikes lax* cylindrical, bracts subulate.—*E. B.* 2424. *Sole* 5.—Cor. glabrous. Whorls of the spike rather distant. L. glandular below.—*β. crispa* (Benth.).—In marshy places, rare. *β.* Glen Farg, Perthshire. *Hooker.* P. VIII. *Spear Mint.*

4. *M. pratensis* (Sole); *l. nearly sessile* ovate-lanceolate acute serrate, *floral l.* similar the smaller ones *longer than the whorls, whorls all distant* subglobose, pedicels glabrous, *cal. bellshaped*: teeth hairy.—*Sole* 17. M. gentilis. *Sole* 15. *E. B.* 449. M. rubra *Fries.* M. gracilis *γ. Sm.*—St. and l. usually glabrous. L. paler beneath and glandular. Cal. glandular.—In marshy places, rare. P. VIII. IX. E.

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5. *M. piperita* (L.); *l. stalked* ovate-lanceolate or oblong serrated, upper l. smaller, bracts lanceolate, *spikes lax short obtuse interrupted below*, cal. tubular glabrous below with lanceolate subulate teeth.—*E. B.* 687.—St. and l. nearly glabrous or hairy on the nerves beneath. Cal. glandular.—*β. sylvestris* (Sole); l. ovate rounded and almost heartshaped below, spikes elongated. *Sole* 24.—Wet places, rare, P. VII. VIII. *Pepper Mint.*

6. *M. aquatica* (L.); l. stalked ovate serrate rounded or slightly cordate below, *uppermost l.* like bracts and *shorter than the whorls, whorls few subglobose capitate the uppermost terminal*, cal. tubular with triangular subulate teeth hairy as well as the pedicel.—*E. B.* 447.—Cal. glandular. *Inflorescence capitate, determinate.* Occasionally the whorls are more numerous, but the uppermost is always terminal.—*M. citrita* Ehrh. *M. odorata* Sole 9. *E. B.* 1025. appears to me to be a glabrous variety of this species.—In wet places. P. VII. VIII. *Capitate Mint.*

7. *M. sativa* (L.); l. stalked ovate or elliptical serrate, upper ones similar but smaller *all longer than the whorls*, whorls all distant dense, cal. tubular or bellshaped: *teeth triangular-lanceolate* acuminate.—*Inflorescence whorled indeterminate.* Uppermost leaves often barren.—*α. vulgaris*; cal. and pedicels hairy. *M. sativa* Sm. *E. B.* 448.—*β. rubra*; pedicels and lower part of the calyx glabrous, st. slightly branched reddish, whole plant nearly glabrous. *M. rubra* Sm. *E. B.* 1413.—*γ. gentilis*; pedicels and lower part of the cal. glabrous; teeth shorter triangular, whole plant nearly glabrous, st. much branched green, l. all of nearly the same size. *M. gentilis* Sm. *E. B.* 2118. The characters of this variety closely approach *M. arvensis.*—*δ.? acutifolia*; pedicels and cal. hairy all over, l. ovate-lanceolate tapering at each end. *M. acutifolia* Sm. *E. B.* 2415. It is probable that this plant is correctly referred here. A specimen from near Settle, Yorkshire, given to me by my friend Mr. S. H. Haslam, only differs from Smith's plant by having glabrous pedicels.—Var. *α*, *β*, and *γ* are closely connected by intermediate forms.—In wet places. *δ.* Banks of the Medway, but not found for many years. P. VII. VIII. *Whorled hairy Mint.*

8. *M. arvensis* (L.); l. stalked ovate or elliptical serrate, *upper l. similar and equally large*, whorls distant, *cal.* bellshaped: *teeth triangular as broad as long.*—Inflorescence indeterminate. —*α. vulgaris*; l. narrowed below. *M. arvensis* Sm. *E. B.* 2119. —*β. agrestis*; l. somewhat cordate below, upper ones nearly sessile. *M. agrestis* Sm. *E. B.* 2120.—In corn-fields. P. VII. —IX. *Corn Mint.*

** *Throat of the calyx closed with hairs.*

9. *M. Pulegium* (L.); l. stalked elliptical obtuse slightly crenate all similar, whorls all distant globose many-flowered, cal.

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tubular hispid closed with hairs in the throat.—*E. B.* 1026. *Sole* 23.—St. prostrate. The smallest of our species and remarkably different in habit.—Wet places. P. VIII. IX. *Pennyroyal.*

2. Lycopus *Linn.*

1. *L. europæus* (L.); l. stalked ovate-oblong sinuate-dentate or pinnatifid, sterile stam. wanting, nuts within the tube of the calyx.—*E. B.* 1105.—L. glabrous or pubescent. Bentham says (Lab. 186) of this, "stolonibus nullis," but the English plant certainly produces runners. *L. exaltatus* is distinguished by having 2 barren stamens and much longer seeds.—Banks of streams and ditches. P. VII. VIII. *Gypsy-wort.*

Tribe II. *Monardeæ.*

3. Salvia *Linn.*

1. *S. verbenaca* (L.); l. oblong obtuse cordate below sinuate and crenate or dentate stalked, *upper l. short broad cordate* sessile clasping, bracts cordate acuminate, *tube of the cor. as long as the calyx.*—*E. B.* 154.—Varies with the l. inciso-dentate. Remarkable for its enlarged very broad sessile upper leaves.—Dry gravelly banks. P. V. VI. *English Clary.*

2. *S. clandestina* (L.); l. oblong cordate below sinuate-dentate or inciso-dentate stalked, *upper l. oblong acute* sessile scarcely cordate or clasping, bracts cordate acuminate, *tube of the cor. longer than the calyx.*—Although probably distinct from the preceding it is very difficult to distinguish them on paper. See *Benth. Lab.* 241.—Dry gravelly banks, rare. Lizard Point, Cornwall. P. VII. E.

3. *S. pratensis* (L.); l. oblong-ovate cordate below crenate-dentate stalked, upper l. small sessile lanceolate acute, bracts cordate acuminate, cor. thrice as long as the calyx.—*E. B.* 153. —Distinguished from both the preceding species by its large flowers.—Near Cobham, Kent. P. VII. E.

Tribe III. *Satureineæ.*

4. Origanum *Linn.*

1. *O. vulgare* (L.); l. stalked broadly ovate obtuse, bracts ovate longer than the cal., heads of fl. roundish panicled crowded. —*E. B.* 1143. *St.* 3. 13.—Bracts usually purple. L. often slightly toothed.—Dry uncultivated places. P. VIII. *Marjoram.*

5. Thymus *Linn.*

1. *T. Serpyllum* (L.); fl. whorled or capitate, l. ovate or ob-

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long more or less attenuated into a short petiole flat fringed with long hairs, floral l. similar, upper lip of the cor. emarginate ovate 4-angular, upper lip of the cal. with short ovate-lanceolate teeth, lower with subulate ciliated teeth.—*E. B.* 1514.—L. sometimes nearly glabrous, at others densely hairy. St. procumbent, woody, bifariously hairy.—Dry heaths. P. VI.—VIII. *Wild Thyme.*

6. CALAMINTHA *Moench.*

* *Fl. in whorls of* 2 *dichotomous cymes.*

1. *C. Nepeta* (Clairv.); l. ovate obtuse serrated pale beneath shortly stalked, cal. subcampanulate obscurely 2-lipped: teeth all nearly the same shape the upper ones slightly shorter, *nuts roundish almost smooth,* cymes dichotomous many-flowered.—*E. B.* 1414. *St.* 70. 3. *Thymus* Sm. *Melissa* Benth.—Nuts pale brown.—Dry banks, rare. P. VII. VIII. *Lesser Calamint.*—E.

2. *C. officinalis* (Moench); l. broadly ovate rather acute slightly serrated green on both sides on longish stalks, cal. tubular ventricose in front distinctly 2-lipped, teeth of the upper lip triangular of the lower twice as long and subulate, *nuts roundish covered with impressed dots,* cymes scarcely dichotomous few-flowered.—*E. B.* 1676. *St.* 70. 2. *Thymus Calamintha* Sm. *Melissa Cal.* Benth.—Nuts dark brown. Larger in all its parts than the preceding.—Dry banks, rare. P. VII.—IX. *Common Calamint.* E. I.

** *Whorls of* 6 *simple separate peduncles.*

3. *C. Acinos* (Clairv.); l. ovate subserrate acute with revolute margins, cal. tubular gibbous below distinctly 2-lipped: upper with short triangular teeth lower with subulate teeth all converging in fruit.—*E. B.* 411. *St.* 70. 5. *Thymus* Sm. *Acinos* Hook. *Melissa* Benth.—St. 6—8 in. long.—Dry gravelly places. A.? VIII. *Basil Thyme.*

*** *Fl. in dense axillary whorls. Bracts forming a kind of involucre.*

4. *C. Clinopodium* (Spenn.); l. ovate obtuse rounded below slightly crenate, whorls equal many-flowered, bracts setaceous as long as the calyx.—*E. B.* 1401. *Clinopodium vulgare* Sm. *Melissa* Benth.—St. 1—1½ foot high. Fl. purple in 2 or 3 dense whorls, the uppermost terminal.—Dry bushy places. P. VII. VIII. *Wild Basil.*

Tribe IV. *Melissineæ.*

7. MELISSA *Linn.*

*1. *M. officinalis* (L.); l. ovate crenate-serrate acute paler beneath, cal. subcampanulate slightly ventricose in front distinctly

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2-lipped, upper lip flat truncate with 3 short broad teeth, lower with 2 lanceolate teeth.—*St.* 11.—St. 2 feet high. Fl. in axillary secund whorls.—Naturalized in many places in the south. E. I.

Tribe V. *Scutellarieæ.*

8. Scutellaria *Linn.*

1. *S. galericulata* (L.); l. shortly stalked all oblong-lanceolate cordate below crenate-serrate, fl. axillary opposite secund, calyx without glands.—*E. B.* 523.—Cor. large, blue. St. 6—12 in. high, stout. Distinguished from *S. hastifolia* by wanting the glandular hairs on the calyx, although that part is downy, and the different shape of the leaves. This genus is remarkable for being provided with a curved elongated support (carpophore) to its nuts.—Banks of rivers and ditches. P. VII. VIII. *Common Skull-cap.*

2. *S. minor* (L.); l. shortly stalked, lower l. broadly ovate, intermediate ovate-lanceolate with the base cordate, upper l. lanceolate with a rounded base, fl. axillary opposite secund, cal. pubescent.—*E. B.* 524.—Cor. small. St. 4—8 in. high, slender. —Moist heaths and boggy places. P. VII.—IX. *Lesser Skull-cap.*

9. Prunella *Linn.*

1. *P. vulgaris* (L.); l. stalked oblong-ovate obtuse, upper lip of the cal. with short truncate mucronate teeth, lower lip with ovate-lanceolate mucronate teeth, longer stam. with a straight spinous tooth at their apex.—*E. B.* 961.—In all the British specimens that I have seen the l. are nearly entire; on continental specimens they are sometimes pinnatifid. Fl. blue, rarely white, whorled, crowded into a dense spike, with 2 broad obcordate acuminate bracts under each whorl. Cal. reddish-purple.—In damp pastures. P. VII. VIII. *Self-heal.* E. S.

Tribe VI. *Nepeteæ.*

10. Nepeta *Linn.*

1. *N. Cataria* (L.); l. stalked cordate acute inciso-serrate whitish-pubescent beneath, whorls dense many-flowered rather stalked spiked, nuts smooth and glabrous.—*E. B.* 137.—Fl. white. St. 2—3 feet high, downy or mealy. Stam. at length curved outwards.—Waste places. P. VII. VIII. *Cat-mint.*—E. I.

2. *N. Glechoma* (Benth.); l. cordate-reniform crenate, whorls axillary stalked secund 3—4-flowered, cal.-teeth ovate aristate, nuts oblong with impressed dots.—*E. B.* 853. *Glechoma hederacea* Sm.—St. procumbent, creeping. Anth. in pairs forming a

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cross.—β. *hirsuta*; cal.-teeth elongate linear-lanceolate. *G. hirsuta* "W. and K.," Reich.—Hedges and thickets. β. Scotland. P. IV.—VI. *Ground-ivy.*

Tribe VII. *Stachydeæ.*

11. Melittis *Linn.*

1. *M. Melissophyllum* (L.). The only species.—*E. B.* 577 and 636.—L. oblong-ovate or slightly cordate. Upper lip of the cal. with 2 or 3 teeth. Fl. purple with a white margin or variegated in different ways, large. St. 1—2 feet high. *M. grandiflora* (Sm.) is only a slight variety.—Woods in the south. P. V. VI. *Bastard Balm.* E.

12. Lamium *Linn.*

1. *L. amplexicaule* (L.); l. roundish-cordate obtuse inciso-crenate, lower ones stalked, upper sessile and clasping, *cal.-teeth* longer than their tube (green) at length *connivent*, lateral lobes of the *lower lip of the cor. toothless, nuts* obovate oblong.—*E. B.* 770. *R. Icon.* f. 373.—Nuts small, three times as long as broad, with a small triangular oblique terminal space. Tube of the cor. much longer than the calyx, slender, naked within; occasionally the lateral lobes of the lower lip have 3 minute teeth. In damp weather the cor. does not always expand but still the anth. are fertile and fr. is produced.—Sandy and chalky fields. A. V.—VIII. *Henbit Nettle.*

2. *L. intermedium* (Fries); l. reniform-cordate obtuse inciso-crenate, lower ones stalked, upper sessile and clasping, *cal.-teeth longer than their tube hispid always spreading*, lateral lobes of the lower lip of the *cor. with a short tooth, nuts oblong.—R. Icon.* f. 964.—Nuts twice the size of those of the preceding, as broad as but longer than those of the following, with a large triangular terminal rather oblique space. Tube of the cor. naked within. Cal.-teeth usually purple, rigid.—Common in Scotland. Sligo, Ireland. A. VI.—IX. S. I.

3. *L. purpureum* (L.); l. cordate-obtuse crenate-serrate stalked the upper ones crowded, cal.-teeth as long as their tube always spreading, lateral lobes of the lower lip of the *cor. with* 2 *teeth*, nuts oblong.—*E. B.* 769.—Cor. pale purple, lip spotted with red. Nut about twice as long as broad. A form of this plant with more deeply cut leaves is often taken for *L. incisum.*—Waste and cultivated ground. A. V.—VIII. *Red Dead-nettle.*

4. *L. incisum* (Willd.); l. cordate obtuse inciso-serrate stalked, upper ones crowded, cal.-teeth as long or longer than their tube always spreading, lateral lobes of the lower lip of the *cor. with one tooth*, nuts oblong.—*E. B.* 1933.—Varies with the l. cordate

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or wedgeshaped below, and the st. few slender and elongated or numerous thick and short.—Cultivated and waste ground. A. IV.—VI.

5. *L. album* (L.); l. cordate-ovate acuminate deeply serrate stalked, *cal.-teeth* as long as the tube *all separated by acute angles*: *upper one distant from the others*, lateral lobes of the lower lip of the *cor. with* 3 *teeth*, tube as long as the calyx.—*E. B.* 768. *St.* 8.—St. 12—18 in. high. Fl. large, white. The separation of one tooth from the others in the calyx of this species is remarkable.—Waste ground. P. V. VI. *White Dead-nettle.*

†6. *L. maculatum* (L.); l. cordate-ovate acuminate deeply serrate stalked, *cal.-teeth* longer than their tube 3 *upper ones separated from the other* 2 *by broad obtuse angles*, lateral lobes of the lower lip of the *cor. with* 1 *tooth*, tube longer than the calyx. —*E. B.* 2550.—St. 12—18 in. high. Fl. purple. L. marked with white cordate-ovate (L. maculatum *R. Icon.* t. 215.), or green triangular-cordate (L. lævigatum *R. Icon.* t. 216.).—Fifeshire and Clova. P. VI.—VIII. E.? S.

7. *L. Galeobdolon* (Crantz); l. ovate acuminate truncate below coarsely serrate stalked, upper l. lanceolate attenuated below, helmet of the cor. elongated entire, *lower lip in* 3 *entire nearly equal lobes.*—*E. B.* 787. *Galeobdolon luteum* Sm. *G. montanum* Reich. !—Fl. yellow. St. 12—18 in. high. G. luteum *Reich.*! differs from this by having the l. all ovate-acuminate and the lower ones simply crenate with a minute apiculus. I have not seen this in Britain, in our plant the lower l. are coarsely and even doubly serrate.—Woods and thickets. P. V. VI. *Archangel.*

13. LEONURUS *Linn.*

1. *L. Cardiaca* (L.); lower l. palmately 5-fid inciso-dentate, upper ones 3-lobed entire wedgeshaped below, tube of the cor. with an oblique ring, helmet nearly flat, lip spreading the middle lobe entire.—*E. B.* 286. *St.* 9. 2.—St. 3 feet high. Cor. hairy externally, purple. Fl. in crowded whorls. Cal.-teeth sharp.—Hedges and waste places, rare. P. VIII. *Motherwort.*

14. GALEOPSIS *Linn.*

1. *G. ochroleuca* (Lam.); st. softly pubescent with deflexed hairs not thickened below the joints, l. ovate-lanceolate serrated soft and downy on both sides, upper l. ovate, cal. glandular shaggy, *upper lip of the cor. deeply notched.*—*E. B.* 2353. *St.* 62. 5. *G. villosa* Sm.—Cor. large, pale yellow. St. 10—12 in. high. —Sandy corn-fields, rare. A. VII. VIII.

2. *G. Ladanum* (L.); st. softly pubescent with deflexed hairs not thickened below the joints, l. lanceolate or ovate-lanceolate

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serrated or nearly entire downy on both sides, cal. shaggy with adpressed hairs and a few glandular hairs intermixed, *upper lip of the cor. slightly notched.*—*E. B.* 884. *St.* 62. 3.—Cor. purple variegated with crimson and white, shaggy externally. St. about a foot high. A variety with fl. of half the usual size is the *G. intermedia* of Reich.! *G. parviflora* Lam.—In gravelly and sandy districts. A. VIII. IX. *Red Hemp-nettle.*

3. *G. Tetrahit* (L.); *st. hispid thickened below the joints,* l. oblong-ovate acuminate serrate, cal. tubular teeth and tube nearly equal, *tube of the cor. as long as the cal.,* upper lip ovate.—*E. B.* 207. *St.* 62. 6. Tube of the cor. slender, slightly inflated. Fl. purplish, variegated or white. L. slightly pubescent above.—The continental botanists distinguish 2 plants from this, both of which ought to be found in Britain—1. *G. bifida* (Boenningh.) distinguished by its bifid lower lip; and—2. *G. pubescens* (Bess.) by its less hispid but pubescent st., the upper part of the tube of the cor. purple and the l. very pubescent. I consider both of these as slight varieties of *G. Tetrahit,* but they require examination in a recent state.—Cultivated ground. A. VII.—IX. *Common Hemp-nettle.*

4. *G. versicolor* (Curt.); st. hispid thickened below the joints, l. oblong-ovate acuminate serrate, cal. bellshaped teeth shorter than the tube, *tube of the cor. much longer than the cal.,* upper lip roundish-oval.—*E. B.* 667. *St.* 62. 8.—Tube of the cor. inflated above. Fl. very large, yellow, with usually a broad purple spot upon the lower lip. Difficult to distinguish upon paper from *G. Tetrahit.*—Cultivated ground. A. VII. VIII.

15. Stachys *Linn.*

1. *S. Betonica* (Benth.); erect, lower l. ovate-oblong with a cordate base crenate obtuse with long stalks, upper l. oblong-lanceolate serrate acute sessile, bracts linear-lanceolate as long as the cal., whorls many-flowered condensed into an oblong slightly interrupted spike, *cal. nearly glabrous,* stam. shorter than the lip.—*Betonica officinalis* Sm. *E. B.* 1142.—Whorls sometimes separated considerably. Tube of the cor. exserted. The English plant does not exactly agree with either of those described by Reichenbach having the subulate-spinous cal.-teeth of his *B. officinalis*! and the round crenate not emarginate lower lip of his *B. hirta*!; and from the examination of authentic specimens I am led to fear that the forms of the cor. represented on his plates are exaggerated.—Woods and thickets. P. VII. VIII. *Betony.*

2. *S. germanica* (L.); whorls many-flowered, *st.* erect *woolly,* l. oblong-ovate or ovate-lanceolate with a cordate base crenate-serrate stalked, *upper l. lanceolate* acute sessile, *all densely silky,*

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cal. silky: teeth acute mucronate spinose, bracts equalling the calyx.—*E. B.* 829.—Fl. purple. *S. polystachia* (Ten.!) only differs by having more truly crenate l.; *S. germanica* of Ten.! and of R.! is a less woolly plant with more distant whorls and less spinous cal.-teeth.—Chalky soil in Oxfordshire and Bedfordshire. P. VII. *Downy Woundwort.* E.

3. *S. sylvatica* (L.); whorls 6—8-flowered, st. erect, *l. cordate-ovate* serrate with long petioles, *floral l. linear entire*, cal. lanceolate very acute, *bracts minute.*—*E. B.* 416.—Cal.-teeth rather spinous. Petioles and l. nearly equal. Fl. purple. "Nuts smooth." L. clothed with scattered adpressed hairs or densely silky on both sides.—Woods and thickets. P. VII. VIII. *Hedge Woundwort.*

4. *S. palustris* (L.); whorls 6—10-flowered, st. erect, *l. linear- or ovate-lanceolate subcordate below acute crenate-serrate nearly sessile*, cal.-teeth lanceolate very acute, bracts minute.—*E. B.* 1675. *St.* 18. 10.—Cal.-teeth rather spinous. Lower l. with very short stalks, uppermost sessile. Fl. dull purple. Nuts very minutely dotted.—*β. ambigua*; l. stalked ovate-lanceolate cordate below serrate. Petioles half as long as the leaves. *S. ambigua* Sm.—River-sides and damp places. P. VII. VIII. *Marsh Woundwort.*

5. *S. arvensis* (L.); whorls 4—6-flowered, st. decumbent or ascending, *l. ovate-cordate obtuse* crenate stalked, *floral l. ovate-oblong* sessile acute, cal.-teeth lanceolate-aristate, cor. scarcely longer than the cal., bracts minute.—*E. B.* 1154.—Fl. purple. Nuts covered with minute dots and scattered tubercles.—Cornfields. A. VIII. IX.

*6. *S. annua* (L.); whorls 4—6-flowered, st. erect, lower l. ovate-oblong obtuse crenate-serrate stalked, *floral l. lanceolate* acute, cal.-teeth lanceolate very acute, tube of the cor. longer than the cal., bracts minute.—*E. B. S.* 2669.—Fl. yellowish. Nuts minutely rough.—Near Gadshill, Kent. A. VIII. IX.—E.

16. Ballota *Linn.* Horehound.

1. *B. fœtida* (Lam.); l. ovate crenate-serrate acute, bracts linear subulate, cal.-tube funnelshaped, *cal.-teeth broadly ovate short suddenly acuminate* mucronate *carinate-reflexed.*—*E. B.* 46. *R.*! *Icon. f.* 1041.—St. 2—3 feet high. Fl. purple or white.—*β. borealis* (R.); cal.-teeth with very short points, whole plant including the cor. covered with thick down.—Waste places. *β.* St. Vincent's rocks, Bristol. *Mr. Borrer.* P. VII. VIII.

2. *B. ruderalis* (Fries); l. ovate crenate-serrate, bracts linear-subulate, cal.-tube narrow and elongate, *cal.-teeth ovate gradually acuminate* aristate *erecto-patent.*—*R.*! *Icon.* f. 1039.—St. 2—3 feet high. Fl. purple or white. Fries, Leighton, Drejer

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and others consider these 2 plants quite distinct, but I have considerable doubts.—Waste places. P. VII. VIII.

17. MARRUBIUM *Linn.*

1. *M. vulgare* (L.); st. erect hoary, l. ovate and attenuated into a petiole or roundish-cordate crenate hoary rough, whorls many-flowered, cal.-teeth 10 subulate recurvo-patent woolly below their upper half glabrous.—*E. B.* 410.—St. 1—2 feet high with numerous whorls of small flowers. My Scottish specimen has the l. rather dentate than crenate.—*β. apulum*; l. roundish-cordate densely woolly. *M. apulum* Ten.—Waste places, "frequent." P. VIII. IX. *White Horehound.*

Tribe VIII. *Adjugoideæ.*

18. TEUCRIUM *Linn.*

1. *T. Scorodonia* (L.); st. erect, l. oblong-ovate with the base cordate crenate-serrate green on both sides, racemes lateral and terminal one-sided, floral l. ovate acute rather longer than the pedicels, *upper lip of the cor. undivided ovate*, lower with 4 teeth, tube of the cor. exserted—*E. B.* 1543.—St. 1—2 feet high. L. wrinkled. Fl. yellowish.—*β. dentatum*; l. oblong truncate below or slightly cordate coarsely dentate: teeth unequal and often alternately smaller.—Woods and shady places. *β.* By the roadside near Beaumaris. P. VII. VIII. *Wood Sage.*

2. *T. Scordium* (L.!); st. procumbent below, *l. sessile* oblong dentate *attenuated below* green on both sides, floral l. similar, whorls 2—6-flowered axillary distant, cal.-teeth short equal.—St. woolly. Lower l. with their "base rounded." Fl. purple. The only native specimen that I have seen (from Portumna bridge, Ireland, *Mr. Mackay* in Sm. Herb.) has the l. more suddenly attenuated below and the whole plant more glabrous than in my foreign specimens.—England and Ireland. *Bentham.* P. VII. VIII. E. I.

3. *T. scordioides* (Schreb.); st. procumbent below, *l. all cordate below and clasping* oblong dentate green on both sides, floral l. similar, whorls about 6-flowered axillary distant, cal.-teeth short equal.—*T. Scordium* Sm.! not Linn. *E. B.* 828.—St. very woolly. Fl. purple.—Wet places, rare. Cambridge. Devon. Are the plants found at Highbridge, Oxf., and near Castle Lyons, Ireland, this plant or the preceding? P. VII. VIII. E. I.

4. *T. Chamædrys* (L.); st. ascending, l. ovate inciso-crenate wedgeshaped and entire below green on both sides, *floral l. similar smaller nearly entire, whorls racemose* 6-flowered, cal.-teeth lanceolate nearly equal.—*E. B.* 680.—St. much branched, lower part woody. Fl. purplish with darker lines. The lower floral

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l. exactly resemble the stem l. but become gradually smaller.—Ruined walls and dry banks, rare. P. VII.

[*T. regium* (Schreb.) which differs from the preceding by having its l. ovate crenate, floral l. ovate-rhomboidal, and distinctly separated from those of the stem, whorls 1—5-flowered, fl. yellow with the upper lip reddish, is said to have been found in the slope of the Blorenge near Abergavenny by Mr. E. Y. Steele, but I fear that some mistake has occurred. See *Ann. Nat. Hist.* v. 377.]

19. AJUGA *Linn.*

1. *A. reptans* (L.); fl. whorled, st. solitary with creeping scions, l. ovate or obovate entire or crenulated stalked, stem l. sessile.—*E. B.* 489.—Lower whorls distant, upper ones spicate. Tube of the cor. with a ring of hairs within. Fl. blue, rarely white.—Wet places. P. V. VI. *Common Bugle.*

2. *A. pyramidalis* (L.); fl. whorled, most or all of the whorls spiked, st. solitary *without scions*, l. ovate-oblong entire or crenulated, radical l. attenuated below, stem l. sessile *upper ones longer than the fl.*—*E. B.* 1270.—Tube of the cor. with a ring of hairs within. Fl. bluish-purple. Whorls crowded in a pyramidal and tetragonal form. Plant often hairy.—Highland mountains, very rare. P. V. VI. S.

3. *A. alpina* (L.); fl. whorled, whorls distinct, st. solitary without scions, l. ovate-lanceolate obtuse dentate-serrate stalked, stem. l. narrower oblong, *floral l. 3-lobed the uppermost entire.*—*E. B.* 477.—L. all nearly of the same size. Whorls all distant. Lip 3-lobed, central lobe entire.—Mountains. Durham and Derbyshire. *Sm.* "Cave Hill, Belfast. *Mr. J. W. Murphy.*" Hooker. P. VII. E. I.

4. *A. Chamæpitys* (Schreb.); *fl. solitary axillary*, st. much branched spreading, *l. deeply trifid*: *segments linear* entire, floral l. similar longer than the flowers.—*E. B.* 77.—Hairy. Lowest l. much broader and toothed rather than 3-lobed. Fl. yellow with dark spots. St. reddish-purple.—Sandy fields in Kent and Essex. A. V.—VII. *Ground Pine.* E.

Order LX. VERBENACEÆ.

Cal. tubular persistent. Cor. irregular, tubular. Stam. didynamous, sometimes 2. Ovary 2—4-celled; style 1; stigma bifid. Fr. a capsule or berry, with 2—4 nucules more or less adhering.

1. VERBENA. Cal. 5-fid. Cor. irregular, 5-lobed, slightly 2-lipped. Stam. included, 4, didynamous, or 2. Carpel dividing into 4 nuts.

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1. VERBENA *Linn.*

1. *V. officinalis* (L.) ; st. erect solitary, l. ovate-oblong trifid or laciniate-multifid rough, spikes filiform somewhat panicled.—*E. B.* 767. *St.* 3.—St. rather hispid, 1—2 feet high. L. lobed and serrate. Spikes long, slender, with small distant pale purple flowers.—Waste ground. A. or P. VII. VIII. *Vervain.*

Order LXI. LENTIBULAREÆ.

Cal. permanent, inferior, divided. Cor. irregular, 2-lipped, spurred. Stam. 2. Ovary free, 1-celled of 2 carpels. Stigma of 2 plates. Caps. 1-celled with a free central placenta.

1. PINGUICULA. Cal. 2-lipped, lower of 1 bifid, upper of 3 segments. Cor. ringent, spurred.

2. UTRICULARIA. Cal. 2-leaved, equal. Cor. personate, spurred.

1. PINGUICULA *Linn.* Butterwort.

1. *P. vulgaris* (L.); spur subulate shorter than the limb of the cor. whose *segments* are very unequal *oblong-obovate rounded separated* entire.—*E. B.* 70.—L. all radical, fleshy, covered with minute crystalline points, pale green ; when the plant is gathered they curve backwards so as to hide the root. Fl. purple. Caps. ovate (and rather acute ?).—Bogs. P. V. VI.

[*P. longicornis* (Ed. Cat.) must be erased, having been introduced through a mistake.]

2. *P. grandiflora* (Lam.) ; spur subulate often notched as long as the veined limb of the cor. whose *segments* are very unequal *broadly obovate rounded contiguous* "the middle one of the lower lip notched."—*E. B.* 2184.—Much larger than *P. vulgaris.* Fl. very large, deep purple. Caps. oval, rounded at the end. Length of the spur variable.—Kerry and Cork. P. V. VI. I.

3. *P. alpina* (L.) ; *spur conical shorter than the unequal limb of the cor.* and curved upwards, caps. acuminate, scape glabrous.—*E. B. S.* 2747.—Fl. small, yellowish, spur remarkably short and conical.—Bogs in Skye ; and Black Isle, Ross. P. VI. S.

4. *P. lusitanica* (L.) ; *spur cylindrical* obtuse decurved shorter than the nearly equal limb of the cor., *caps. globose, scape downy.* —*E. B.* 145.—Fl. small, pale, yellowish, spur short and cylindrical. *P. villosa,* distinguished from this by its acute spur and obconical capsule, may be expected in the north of Scotland.—Bogs in the western parts of the country. P. VII.

2. UTRICULARIA *Linn.*

1. *U. vulgaris* (L.) ; spur conical, *upper lip of the cor. as long*

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as the palate, l. pinnate-multifid, bladders upon the leaves.—*E. B.* 253.—Fl. bright yellow, rather large. St. floating in the water. *U. neglecta* (Lem.) differs by having the upper lip nearly 3 times as long as the palate, more distant l. and bladders on both stem and leaves. It is probably a native.—P. VI.—VIII. *Greater Bladderwort.*

2. *U. intermedia* (Hayne); spur conical, *upper lip twice as long as the palate,* l. 3-parted: segments linear dichotomous, *bladders separate from the leaves.*—*E. B.* 2489.—Fl. paler and with a much longer lip than in the preceding. Bladders on separate stalks from the leaves. Increasing by buds at the end of the shoots and seldom flowering.—Ditches and pits, rare. P. VIII.

3. *U. minor* (L.); *spur very short obtuse,* upper lip as long as the palate, l. dichotomously multifid, bladders upon the leaves. —*E. B.* 254.—Scarcely any spur. Fl. small. Plant much smaller than either of the others.—Ditches and pits. P. VI.—VIII. *Smaller Bladderwort.*

Order LXII. PRIMULACEÆ.

Cal. 4—5-cleft, permanent, inferior. Cor. regular, 4—5-fid. Stam. upon the cor., opposite to its segments. Ovary free, 1-celled, with a free central placenta. Style 1. Stigma capitate. Fr. a capsule. Seeds peltate; embryo transverse in fleshy albumen.

1. PRIMULA. Cal. tubular, 5-fid. *Cor. salvershaped, tube cylindrical* up to the insertion of the stamens. Stam. 5, inserted and included in the tube of the cor. Caps. many-seeded, 5-valved with 10 teeth.

2. HOTTONIA. Cal. 5-parted, divided almost to its base. Seeds with the hilum close to one end. Otherwise like *Primula.*

3. CYCLAMEN. Cal. bellshaped, half 5-cleft. *Cor. with a short bellshaped tube and 5-partite reflexed limb.* Stam. 5, inserted at the bottom on the tube of the cor., included. Caps. many-seeded, opening with 5 teeth.

4. LYSIMACHIA. Cal. 5-parted. *Cor. rotate,* scarcely any tube, limb 5-parted. Stam. 5, inserted at the base of the cor. Caps. opening with 5 valves (in *L. nemorum* sometimes 2-valved or indehiscent, in *L. thyrsiflora* few-seeded).

5. ANAGALLIS. Cal. 5-parted. Cor. rotate, tube none, limb 5-parted. Stam. 5, inserted at the base of the cor. *Caps.* many-seeded, *opening all round transversely.*

6. CENTUNCULUS. Cal. 4-parted. *Cor. with a subglobose*

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inflated tube and patent 4-parted limb. Stam. 4, inserted in the throat of the cor. Caps. many-seeded, opening all round transversely.

7. TRIENTALIS. *Cal. 7-parted.* Cor. rotate, *7-parted, tube none.* Stam. 7, inserted at the base of the cor. Caps. many-seeded, opening with 5 revolute fugacious valves. *Seeds invested with a reticulated tunic.*

8. GLAUX. *Cal. bellshaped,* 5-parted, *coloured. Cor. none.* Stam. 5, inserted at the base of the calyx. Caps. few-seeded (about 10), opening with 5 valves.

9. SAMOLUS. *Cal.* 5-parted its *tube adhering to the lower half of the germen. Cor. salvershaped,* tube short, limb 5-parted with interposed converging scales. Stam. 5, inserted near to the base of the tube of the cor. Caps. half covered by the persistent calyx, many-seeded, opening with reflexed teeth.

1. PRIMULA *Linn.*

1. *P. vulgaris* (Huds.); *l. oblong-ovate* wrinkled crenate, scapes single-flowered, *cal. tubular: teeth linear-lanceolate attenuated very acute,* limb of the cor. flat.—*E. B.* 4. *St.* 14. 6.—L. narrowing gradually into the footstalks. Scape and cal. villose. Cal.-teeth long. Segments of the cor. cordate.—*β. umbellata*; l. slightly contracted below, scape umbellate, cal.-teeth lanceolate acute, fl. erect. This is often taken for *P. elatior.*—Woods and thickets. P. IV. V. *Primrose.*

2. *P. elatior* (Jacq.); *l. ovate contracted below* wrinkled denticulate, scapes umbellate many-flowered, *cal. tubular: teeth lanceolate* acute, limb of the *cor. concave*: segments cordate oblong.—*E. B.* 513.? *St.* 14. 5.—Cal.-teeth very long and acute. Segments of the corolla so narrowly cordate as to be almost square. Fl. nodding. Fr. erect. I believe this to be a truly distinct species, identical with the continental plant. It is known from *P. veris* by its cal. and cor.; from *P. vulgaris* by its leaves, nodding fl., and almost square cor.-segments. "Limb of the cor. sometimes flat." *Mr. H. C. Watson.*—See *Phyt.* i. 232.—Woods and meadows, rare. The only recorded station is Bardfield, Essex. *Mr. H. Doubleday.* P. IV. V. *Oxlip.* E.

3. *P. veris* (L.); *l. ovate contracted below* wrinkled crenate, scapes umbellate many-flowered, *cal. bellshaped: teeth short ovate,* limb of the cor. concave.—*E. B.* 5. *St.* 14. 4.—Scapes and cal. tomentose. Cal.-teeth ⅓ of the length of the tube, terminating in an obtuse or slightly acute angle. Cor.-segments cordate. —It is probable that many hybrids are formed between this and *P. vulgaris,* most of which are mistaken for *P. elatior,* but that appears to me to be quite distinct and is only known to occur at the above-mentioned place, specimens from whence agree

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exactly with the continental plant. The hybrids between the Cowslip and Primrose are almost unknown on the Continent, where the plants do not inhabit the same districts.—Meadows and pastures. P. IV. V. *Cowslip. Paigle.*

4. *P. farinosa* (L.); *l.* obovate-lanceolate *mealy, cal. oblong-ovate: teeth linear,* limb of the cor. flat: *segments obcordate rounded below distant* as long as the tube.—*E. B.* 6. *St.* 14.—Fl. pale lilac with a yellow centre. "Germen obovate. Stigma capitate."—North of England and south of Scotland. P. VI. VII. *Bird's-eye Primrose.* E. S.

5. *P. scotica* (Hook.); *l.* obovate-lanceolate *mealy, cal. swollen: teeth short ovate obtuse,* limb of the cor. flat: *segments broadly obcordate approximate* half the length of the tube.—*E. B. S.* 2608.—Half as large as the preceding. Fl. bluish-purple with a yellow centre. "Germen globose. Stigma with 5 points."—Sandy shores of the north of Scotland. P. VII. S.

2. Hottonia *Linn.*

1. *H. palustris* (L.); fl. whorled stalked upon a long solitary cylindrical common peduncle, cor. longer than the calyx, l. pectinated.—*E. B.* 364.—L. submerged crowded. Fl. rising above the water, purple and yellow. Style longer than the cal., stam. inserted in the tube, anth. and filaments about equal in length; or style shorter than the cal., stam. inserted at the top of the tube, filaments 3 or 4 times as long as the anthers. The former of the varieties is apparently barren. The hilum being nearly terminal separates this plant from its allies, in all of which it is placed towards the middle of the seed. The tops of the valves of the caps. remain connected.—Ponds and ditches. P. V. VI. *Water-violet.* E. I.

3. Cyclamen *Linn.*

1. *C. hederifolium* (Willd.); l. cordate angular crenate, throat of the cor. with 5 teeth.—*E. B.* 548.—Root a large depressed tuber. L. radical. Fl. nearly white, upon long stalks which roll up after flowering and bury the germen.—Sandhurst near Cranbrook, Kent. P. X. (IV. *Hook.*) E.

4. Lysimachia *Linn.*

1. *L. thyrsiflora* (L.); *racemes axillary stalked dense,* l. opposite lanceolate.—*E. B.* 176. *Naumburgia* R.—Fl. small very numerous. Cor. divided almost to the base into narrow pet. often separated by a minute tooth, yellow and as well as the cal. spotted with orange. Stam. combined below into a short ring.—Marshes in the north. P. VI. VII. E. S.

2. *L. vulgaris* (L.); st. erect, *panicles* compound *terminal and axillary, l. ovate or ovate-lanceolate* nearly sessile opposite or 3 or 4

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in a whorl, pet. entire with glabrous edges, stam. 5 combined for half their length.—*E. B.* 761.—St. 2—3 feet high. L. variable in size, shape and pubescence. Panicle much branched or nearly simple (L. punctata *Hook.* not *L.*).—Sides of rivers and pools. P. VII.

[Mr. James Backhouse informs me that his relative Mr. W. Backhouse of Darlington found *L. ciliata*, which has crenate pet. and 10 free filaments although only 5 fertile stam., in plenty near the road-side at about half-way between Wigton and Penrith; Cumberland. I have not seen specimens.]

3. *L. Nummularia* (L.); *st. prostrate* creeping, *fl. solitary* axillary, sep. ovate acute, *filaments glandular connected at the base*, l. opposite roundish cordate shortly stalked.—*E. B.* 528.—Peduncles shorter than the leaves.—Damp places. P. VI. VII. *Money Wort.*

4. *L. nemorum* (L.); st. prostrate, fl. axillary solitary, *sep. linear-lanceolate, filaments smooth distinct*, l. opposite ovate acute shortly stalked.—*E. B.* 527. *Ephemerum* R.—Peduncles longer than the l. Caps. usually dividing longitudinally into 2 parts, sometimes indehiscent, rarely with 4 or 5 valves. Stam. distinct. —Woods and damp shady places. P. VI.—VIII.

5. Anagallis *Linn.*

1. *A. arvensis* (L.); st. procumbent or erect, fl. axillary solitary, l. opposite sessile ovate or ovate-oblong.—Cor. rotate. Pet. slightly longer than the cal., crenate. Filaments distinct.—*α. vera*; st. mostly procumbent, pet. fringed with minute glandular hairs (usually scarlet), l. ovate. *A. arvensis* Sm. *E. B.* 529. Fl. sometimes flesh-coloured when it is *A. carnea* Schrank.—*β. cærulea*; st. mostly erect, pet. without glandular hairs (usually blue), l. ovate-oblong. *A. cærulea* Sm. *E. B.* 1823.—I have been unable to detect a good character by which to separate these plants, but am far from being convinced that they are not distinct. —Corn-fields. A. VI. VII. *Scarlet Pimpernel.*

2. *A. tenella* (L.); *st. procumbent* creeping, fl. axillary solitary, l. opposite stalked roundish, *cor. funnelshaped*, pet. much longer than the calyx entire, *filaments connected below.*—*E. B.* 530. *Irasekia* R.—This plant differs so much in habit from the rest of the genus as almost to deserve generic distinction, but the characters upon which *Irasekia* is founded do not appear to me to be of sufficient consequence.—Spongy bogs. P. VII. VIII. *Bog Pimpernel.*

6. Centunculus *Linn.*

1. *C. minimus* (L.); l. ovate alternate acute, fl. nearly sessile, cor. without glands at the base.—*E. B.* 531.—Very minute.

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St. usually prostrate. Cor. pale rose-colour.—Damp sandy and gravelly places. A. VI. VII. *Bastard Pimpernel.*

7. TRIENTALIS *Linn.*

1. *T. europæa* (L.); oblong-obovate obtuse.—*E. B.* 15.—St. 4—6 in. high, with the l. mostly collected at the top. Fl. on slender peduncles, white with a yellow ring. Parts of the fl. and fr. varying from 7 to 9 in each whorl. Valves of the caps. soon falling off.—North of England and highlands of Scotland. P. VI. E. S.

8. GLAUX *Linn.*

1. *G. maritima* (L.). The only species.—*E. B.* 13.—St. mostly procumbent. L. opposite, ovate, glabrous. Fl. axillary, sessile, pink, with obtuse segments. Distinguished from all the other plants of this Order by its want of pet.—Sea-shores and salt marshes. P. VI.—VIII.

9. SAMOLUS *Linn.*

1. *S. Valerandi* (L.); l. obovate or roundish blunt, upper l. blunt with a point, racemes many-flowered ultimately elongated, caps. subglobose.—*E. B.* 703.—Distinguished from all the other genera of the Order by its cal. adhering to the germen and from all but *Soldanella* by having a crown to the corolla.—Damp watery places. P. VII. VIII. *Brook-weed.*

Order LXIII. PLUMBAGINEÆ.

Cal. 5-cleft, persistent, inferior, plicate. Cor. regular, 5-fid or nearly 5-petalous. Stam. 5, hypogynous, or adnate to the base of the pet. Ovary free, 1-celled, 1-seeded; ovule 1, pendulous by an umbilical cord arising from the bottom of the cell. Styles 5. Fr. a utricle. Seed inverted. Embryo in the axis of farinaceous albumen. Radicle superior.

1. STATICE. Fl. spiked. Cal. scarious above. Cor. 5-parted. Caps. not bursting.

2. ARMERIA. Fl. in a head with an inverted cylindrical sheath. Caps. not bursting.

1. STATICE *Linn.*

1. *S. Limonium* (L.); l. elliptic-oblong stalked mucronate 1-ribbed strongly nerved, scape branched above the middle, *branches* much divided *corymbose curved outwards, ultimate subdivisions short unilateral ascending densely flowered, cal.-segments entire* acute with intermediate teeth, outer bracts pointed small. —*E. B.* 102. *S. Behen* Drej.—Panicle very much subdivided,

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truly corymbose, its principal branches curving horizontally or downwards, ultimate subdivisions very short and quite covered with closely-placed subimbricate flowers. Several of the lower bracts often empty, inner ones white at the membranous margin. —Muddy salt marshes. P. VII. VIII. *Sea Lavender.*

2. *S. rariflora* (Drej. !) ; l. oblong-lanceolate stalked mucronate 1-ribbed faintly nerved, scape branched from below the middle, *branches* divided *panicled ascending or incurved, ultimate subdivisions elongated with unilateral rather distant fl., cal.-segments acute denticulate* with intermediate teeth, bracts obtuse outer ones large.—*Drejer Fl. Hafn.*—Quite different in habit from the preceding. Panicle much less divided, not corymbose, branches all ascending, ultimate ones much lengthened. Fl. considerably separated, not at all imbricated. Margin of the bracts tinged with pink. Probably *S. Limonium* γ. Sm.—Near the sea. England and coast of Galloway. P. VII. VIII. E. S.

3. *S. spathulata* (Desf.) ; *l. spathulate* narrowed into a broadly winged stalk mucronate behind the point 3-*ribbed below,* scape branched from below the middle, branches divided panicled ascending, *ultimate subdivisions elongated with closely-placed* 2-ranked *fl., cal.-segments blunt* entire *without intermediate* teeth.—*S. binervosa* G. E. Smith. *E. B. S.* 2663.—See some valuable observations by Mr. W. Wilson in *Hook. Br. Fl.*—Rocky shores. P. VII. VIII.

4. *S. reticulata* (L.) ; l. spathulate narrowed into a flat stalk mucronate behind the point "3-ribbed below," scape panicled almost from the base with *numerous slender zigzag repeatedly divided branches of which the lower are barren,* fl. in small secund terminal dense spikes, *cal.-segments acute denticulate.*—*E. B.* 328. —L. very small. St. remarkably divided and interlacing.—Muddy salt marshes. Norfolk. P. VII. E.

2. ARMERIA *Willd.*

1. *A. plantaginea* (Willd. ?) ; *l. linear-lanceolate* 3—5-*nerved, scape glabrous* minutely tubercular, head roundish, outer involucral bracts cuspidate, intermediate obtuse mucronate, inner broadly obtuse, cal.-segments acuminate-aristate.—*A. alliacea* R. Icon. t. 966.—Jersey. P. VI. VII. O.

2. *A. maritima* (Willd.) ; *l. linear* blunt 1-*nerved, scape downy,* head roundish, *involucral bracts very obtuse* 1—3 outer ones mucronate, cal.-segments acute.—*Statice Armeria* Sm. *E. B.* 226. —L. very narrow, glabrous or downy. The *var. alpina* is not distinguishable being only more constantly downy.—Sea-shore and mountain-tops. P. VII. VIII. *Thrift.*

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Order LXIV. PLANTAGINEÆ.

Cal. 4- (rarely 5-) parted, persistent, imbricate, inferior. Cor. 4-parted, regular, scarious. Stam. 4, hypogynous, or at the base of the tube, alternate with the segments of the cor.; filaments at first doubled inwards. Ovary free, 1-celled, or with a central compressed 2—4-winged placenta and thus 2—4-celled. Ovules 1, 2, or indefinite. Style 1. Caps. opening transversely. Seeds peltate or erect. Radicle inferior.

1. PLANTAGO. Cal. 4-cleft. Cor. with an ovate tube and 4-parted reflexed limb. Caps. bursting transversely, 2—4-celled, 2—4-seeded.

2. LITTORELLA. Monœcious. Male fl. stalked; sep. 4; tube of the cor. cylindrical, limb 4-parted; filaments very long. Fem. fl. sessile; bracts 3; cal. 0; cor. oblong, narrowed at both ends; style long; caps. 1-seeded.

1. PLANTAGO *Linn.*

1. *P. Coronopus* (L.); l. linear pinnatifid or dentate, scape round, spike slender, bracts subulate from an ovate base erect, *midrib of the lateral sep. with a ciliated membranous wing, placenta 4-winged with 1 seed in each cell.—E. B.* 892.—Tube of the cor. glabrous, not downy as stated by Koch. Extremely variable in size and amount of pubescence, sometimes woolly and at other times nearly glabrous. L. varying in width, nearly entire or even doubly pinnatifid. Spikes slender and 1½ in. long, or spherical with only 5 or 6 flowers.—Gravelly and sandy places both near the sea and inland. A.? VI. VII. *Buck's-horn Plantain.*

2. *P. maritima* (L.); l. linear grooved fleshy convex on the back, scape round, spike cylindrical, bracts ovate acuminate, *sep. not winged, caps. 2-seeded, tube of the cor. pubescent.—E. B.* 175.—L. usually woolly at their base, sometimes nearly flat and broad or linear, toothed or quite entire, glabrous or hairy. Scape glabrous or hairy. In a curious Cornish variety the l. are only 1—2 lines in length and semicylindrical, the scapes very short and the spikes sometimes with only 3 or 4 flowers.—Sea-coast and also on lofty mountains. P. VI.—IX.

3. *P. lanceolata* (L.); *l. lanceolate attenuated at both ends* 5-nerved, scape furrowed, spike ovate or oblong-cylindrical, bracts ovate acute or cuspidate, 2 lateral sep. keeled, *caps. 2-celled: cells 1-seeded, tube of the cor. glabrous.—E. B.* 507.—L. nearly glabrous, lanceolate. Spike ovate.—*β. altissima* (Koch); l. elongate-lanceolate, spike very long cylindrical, scape often 2 feet high and l. 1½ foot long. *P. altissima* L.? Jacq.? This appears to be the true *P. altissima*, although in all the specimens of the Carniola plant that I have seen the spikes are young and

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ovate.—*γ. sphærostachya* (W. and G.); l. linear-lanceolate 3-nerved, spike globose, scapes 2—3 times as long as the l. terete or slightly sulcate. Root producing long lateral fibres, neck clothed with dense wool. Scape and l. with silky adpressed hairs.—*α.* and *β.* in meadows and pastures, *γ.* on the sandy sea-shore. P. VI. VII. *Ribwort Plantain.*

4. *P. media* (L.); *l. ovate with short broad stalks* pubescent, scape terete, spike cylindrical, bracts ovate-acuminate, *sep. not keeled*, caps. 2-celled: *cells* 1-*seeded*, tube of the cor. glabrous.—*E. B.* 1559.—L. lying flat on the ground.—Meadows and pastures. P. VI.—IX.

5. *P. major* (L.); l. broadly ovate on longish channeled stalks, scapes terete, spike elongate, bracts ovate-obtuse keeled, sep. with a prominent dorsal nerve, caps. 2-celled: *cells many-seeded.*—*E. B.* 1558.—L. ascending. Seeds about 8.—*β. microstachya* (Koch); scape weak shorter than the 3-nerved l., spike few-flowered: fl. (scarcely more than 6) lax. Scapes sometimes shorter than the petioles. Root fibrous, slender. *Shuttl. in Mag. Zool. Bot.* ii. 23.—Fields and waste places. *β.* in turf-bogs, Cunnamara, Ireland. *Mr. Shuttleworth.* P. VI.—VIII. *Great Plantain.*

2. Littorella *Linn.*

1. *L. lacustris* (L.). The only species.—*E. B.* 468.—Fl. white. Stalks of the male fl. 1—2 in. long. L. all radical, linear.—Margins of lakes. P. VI. VII.

Subclass IV. MONOCHLAMYDEÆ.

With a single perianth only, that is the cal. and cor. not distinguishable, or none.

Order LXV. AMARANTHACEÆ.

Perianth 3—5-parted, scarious, persistent. Stam. hypogynous. Ovary free, 1-celled; ovule 1 or several, suspended from a free central funiculus. Style 1 or 0. Stigma simple or compound. Seeds lentiform. Embryo curved round central farinaceous albumen.—L. without stipules or sheaths.

1. Amaranthus. Fl. monœcious. Perianth 3—5-parted. Stam. 3—5. Styles 3. Caps. 1-celled, 1-seeded, bursting transversely.

1. Amaranthus *Linn.*

*1. *A. Blitum* (L.); fl. 3-fid 3-androus, clusters small lateral the upper ones in a small naked spike, st. diffuse glabrous.—*E. B.* 2212.—Dunghills and waste places near towns, a very doubtful native. A. VIII. E.

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Order LXVI. CHENOPODIACEÆ.

Perianth 5-parted, persistent. Stam. from the base of the perianth. Ovary free or cohering with the tube of the perianth; ovule 1, attached to the base of the cell. Styles divided, or rarely 1. Fr. not bursting, dry, membranous, included in the perianth which often becomes enlarged or fleshy. Embryo curved round farinaceous albumen, or spiral, or doubled together without albumen; radicle next the hilum.—L. without stipules or sheaths.

Tribe I. *SALSOLEÆ*. Fl. uniform, perfect. Seeds without albumen. Embryo spiral. St. continuous.

1. SCHOBERIA. *Perianth* 5-parted, *without appendages*. Stam. 5, springing from the receptacle. Stigmas 2—3. Pericarp membranous. Seed horizontal; testa crustaceous.—Bracteated.
2. SALSOLA. Perianth 5-parted: *segments ultimately with a transverse dorsal appendage*. Stam. 5, springing from an hypogynous ring. Styles 2. Pericarp membranous. Seed horizontal; *testa membranous*.—Bracteated.

Tr. II. *CHENOPODEÆ*. Fl. uniform, perfect. Seeds with albumen. Embryo curved round the circumference of the seed. St. continuous.

3. CHENOPODIUM. Perianth 3—5-parted, persistent, unaltered. Stam. 5, springing from the receptacle. Stigmas 2—3. *Pericarp* thin, *free*. *Testa crustaceous*. Seed vertical or horizontal.—Without bracts.
4. BETA. Perianth 5-parted, persistent. Stam. 5, springing from a fleshy ring. Styles 2—3. *Pericarp immersed and adhering to the tube of the perianth*. Seed horizontal, attached laterally. *Testa membranous*.

Tr. III. *SALICORNEÆ*. Fl. uniform, perfect. Seeds and embryo as in Tr. II. St. jointed.

5. SALICORNIA. Perianth fleshy, tumid, undivided, imbedded in an excavation of the rachis. Stam. 1—2. Style very short, stigma bifid. Pericarp membranous. Seed vertical, covered by the persistent perianth.

Tr. IV. *ATRIPLICEÆ*. Fl. monœcious, rarely perfect. Seeds and embryo as in Tr. II. St. continuous.

6. ATRIPLEX. Perigone of 2 more or less connected parts. Stigmas 2. *Pericarp membranous, free*. *Testa crustaceous*. Seed vertical, attached by a lateral hilum either near the base or by means of an elongated funiculus in the middle of the side; radicle basal. Stam. 5.

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7. HALIMUS. *Perigone* of 2 parts *connected to the extremity*, 3-dentate, wedgeshaped below. Stigmas 2. *Pericarp very thin, ultimately adhering to the tube of the perigone. Testa membranous.* Seed vertical, pendulous from an elongated funiculus, radicle terminal. Stam. 5.

Tribe I. *Salsoleæ.*

1. SCHOBERIA *C. A. Meyer.*

1. *S. fruticosa* (Mey.); st. erect shrubby, *l. obtuse* semicylindrical, styles 3, seeds smooth and shining.—*E. B.* 635. *Salsola* Sm. *Chenopodium* Hook.—St. 2—3 feet high, with numerous erect leafy branches and axillary flowers.—On the south and east coasts, rare. P. VII. VIII. E.

2. *S. maritima* (Mey.); st. herbaceous, *l. acute* semicylindrical, styles 2, seeds reticulate-striate shining.—*E. B.* 633.—*Chenopodium* Sm.—St. erect or procumbent with numerous spreading branches.—Sea-shore. A. VII.—IX.

2. SALSOLA *Linn.*

1. *S. Kali* (L.); minutely hairy, st. diffuse, l. subulate spinous rough, fl. axillary solitary, segments of the enlarged perianth cartilaginous as long as their patent rather coloured roundish wings.—*E. B.* 634.—St. angular, rigid, much branched.—Sandy sea-shores. A. VII.

Tribe II. *Chenopodeæ.*

3. CHENOPODIUM *Linn.*

* *Perianth enveloping the fruit, seed horizontal.*

† Leaves undivided.

1. *C. olidum* (Curt.); *l. ovate-rhomboidal entire mealy*, fl. in leafless dense racemes, seed horizontal shining slightly rough (very small), *st. diffuse.*—*E. B.* 1034. *St.* 75. 14.—Whole herbage covered with a greasy pulverulent fœtid substance.—Waste places by road-side. A. VIII. IX.

2. *C. polyspermum* (L.); *l. ovate-elliptical sessile*, fl. in axillary leafless cymose racemes, seeds horizontal shining minutely punctulate obtuse at the margins.—*E. B.* 1480 and 1481. *Leight.* t. 5. *St.* 75. 12 and 13.—Racemes more or less cymose or spicate. St. erect or procumbent. L. acute or obtuse. *C. acutifolium* and *C. polyspermum* are so completely connected by intermediate forms that it is useless to attempt to distinguish them even as varieties. See *Leight. Shrop.* p. 121.—Damp waste places. A. VIII. IX.

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†† Leaves toothed angled or lobed.

3. *C. urbicum* (L.); *l. triangular* sinuate-dentate or nearly entire their base contracted into the petiole, *spikes erect* nearly leafless compound, seeds horizontal very minutely rough obtuse at the margin.—L. with short triangular teeth.—*β. intermedium* (Koch); l. with large acute teeth. *E. B.* 717.—Koch has proved by cultivation that these are only varieties.—Near Oxford. *Sm. Fl. Br.* β. Waste places. A. VIII.

4. *C. album* (L.); *l. rhomboid-ovate sinuate-dentate* entire below, upper ones lanceolate nearly entire, fl. in compound branched nearly leafless racemes, *seeds* horizontal *smooth* and shining obtusely keeled at the margin.—*E. B.* 1723. *St.* 75. 6.—Axillary racemes spicate dense, l. mealy.—*β. viride* (Sm.); racemes cymose much interrupted elongated, l. green often quite entire. *C. viride* L. *St.* 75. 7.—Waste places. A. VII. VIII.

5. *C. ficifolium* (Sm.); *l. unequally 3-lobed from a wedgeshaped base*: lobes ascending, *intermediate lobe elongate oblong-lanceolate dentate obtuse*, upper l. linear-lanceolate entire, fl. in erect nearly leafless cymose racemes, *seeds* horizontal *excavato-punctate* shining obtuse and not keeled at the margin.—*E. B.* 1724. *St.* 75. 10.—Seeds smaller than those of *C. album*.—Waste ground, rare. A. VIII. IX.

6. *C. murale* (L.); *l. rhomboid-ovate* unequally and sharply toothed entire below, l. in divaricately-branched leafless cymes, *seeds* horizontal *elevato-punctate opaque acutely keeled at the margin*.—*E. B.* 1722. *St.* 75. 5.—Waste ground near towns and villages. A. VIII.

7. *C. hybridum* (L.); *l. subcordate angulate-dentate* acuminate: *teeth large distant*, fl. in aggregated panicled leafless cymes, *seed* horizontal *excavato-punctate* opaque obtuse and *not keeled* at the margin.—*E. B.* 1919. *St.* 75. 2.—Seeds very large. L. with 2—4 large teeth on each side.—Cultivated fields and waste places, rare. A. VIII.

** *Perianth not covering the fruit, seed vertical.*

† Stigmas short.

8. *C. rubrum* (L.); *l. rhomboid* irregularly toothed and sinuated entire below, fl. in erect compound dense leafy spikes, *seeds* very minute smooth shining *obtuse and slightly keeled at the edge*.—*E. B.* 1721.—St. erect, often a foot high. Pericarp very loose. Seed vertical or horizontal in the terminal fl. Fl. generally incomplete. Cal. 4- rarely 5-cleft. Stam. 1 or 2. Mr. Leighton has sent me a variety with much more triangular l., shorter spikes and larger seeds, grown in his garden from seed obtained near London.—Waste places, particularly salt marshes. A. VIII. IX.

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9. *C. botryoides* (Sm.); *l. triangular* somewhat toothed, fl. in compound dense leafy spikes, *seeds* very minute smooth shining *acutely keeled at the edge.*—*E. B.* 2247.—*St. prostrate*, spreading, 4—5 in. long. Pericarp loose. Seeds vertical.—Moist sandy places near the sea. Cornw., Suff., Northumb. A. IX.

10. *C. glaucum* (L.); *l. oblong sinuate-dentate*, fl. in erect nearly simple leafless spikes, *seeds* very minute *reticulate-rugose* acutely keeled at the margin.—*E. B.* 1454. *St.* 75. 1.—St. spreading, often prostrate. Seeds reddish, vertical or horizontal.—Waste ground, particularly on a sandy soil. A. IX.

†† Stigmas elongated.

11. *C. Bonus-Henricus* (L.); *l. triangular-hastate entire*, fl. in compound leafless spikes, seeds vertical smooth and shining.—*E. B.* 1033. *St.* 74. 13.—St. a foot high. L. large, dark green, used instead of *Spinage*.—Waste places near villages, common. P. VIII.

4. BETA *Linn.*

1. *B. maritima* (L.); st. prostrate, l. cuneate-ovate, spikes elongate simple leafy, bracts lanceolate longer than the 2-flowered clusters, segments of the perianth with entire keels.—*E. B.* 285. Root thick, fleshy. St. 6—12 in. long, prostrate below, afterwards ascending.—Sea-shore. P. VII.—IX. *Sea-Beet.*

Tribe III. *Salicorneæ.*

5. SALICORNIA *Linn.*

1. *S. herbacea* (L.); herbaceous, divisions of the st. compressed rather thickened upwards notched, spikes cylindrical tapering.—*E. B.* 415.—St. usually erect, branched, 3—12 in. high. Fl. 3 to each division, placed in a triangle. Stam. 1 or 2.—*β. procumbens*; st. procumbent. *E. B.* 2475.—Muddy sea-shores. A. VIII. IX. *Jointed Glasswort.*

2. *S. radicans* (Sm.); divisions of the st. compressed deeply notched scarcely thickened, spikes oblong obtuse.—*E. B.* 1691. *S. fruticosa* Sm. (not L.) *E. B.* 2467.—St. procumbent or ascending, rooting. Are the fl. in a triangle? Muddy sea-shores. P. VIII. IX. *Creeping Glasswort.* E. I.

Tribe IV. *Atripliceæ.*

6. ATRIPLEX *Linn.*

1. *A. littoralis* (L.); st. erect, *l. linear-lanceolate* entire or rarely toothed, *perigone of the fr. ovate-rhomboid acute* toothed tubercled on the back *spreading.*—*E. B.* 708. *St.* 79. 12.—Distin-

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guished from the next by the form of its open perigone, and l. usually entire. See a detailed account of the British species of *Atriplex* in *Trans. Bot. Soc. Edin.* i. 1. *pl.* 1, 2.—Sea-coast. A. VII.—IX.

c. 1843.

2. *A. marina* (L.); st. erect, *l. ovate-lanceolate* irregularly toothed or rarely entire, *perigone of the fr. obcordate-triangular obtuse* toothed tubercled on the back *closed.*—*St.* 80. 1.—Distinguished by its toothed l. and form of closed perigone. These 2 never have lobed l. like the succeeding species.—Sea-coast. A. VII.—IX.

3. *A. angustifolia* (Sm.!); st. erect or prostrate, l. lanceolate entire, the lower l. with 2 ascending lobes from a wedgeshaped base, *perigone of the fr. rhomboidal* acute *entire with ascending prominent acute lateral angles* smooth on the back and longer than the fr. and *collected into nearly simple interrupted spikes,* seeds smooth and shining.—*E. B.* 1774. *A. patula* Wahl., *Koch in St.* 79. 5.—Spikes wandlike with distant clusters of fl., valves of the perigone of the fr. reticulated.—Common. A. VII.—X.

4. *A. erecta* (Huds.); st. mostly erect with ascending branches, lower l. ovate-oblong with 2 ascending lobes from a wedgeshaped base irregularly sinuate-dentate, upper l. lanceolate entire, *perigone of the fr. rhomboidal denticulate* acute more or less muricated on the back and scarcely longer than the fr. and *collected in branched dense many-flowered spikes,* seeds smooth and shining. —*E. B.* 2223.! *Koch in St.* 79. 6.—Distinguished by its l., compound densely-flowered spikes and smooth shining seeds.—Common upon cultivated land. A. VII.—X.

5. *A. prostrata* (Bouch.?); st. procumbent with procumbent branches, l. opposite, *lower l. hastate-triangular* with 2 horizontally spreading lobes slightly toothed or entire, *intermediate with 2 ascending lobes from a wedgeshaped base,* uppermost l. small lanceolate entire, *perigone of the fr. cordate-triangular* slightly toothed or entire scarcely longer than the fr. *collected into interrupted slightly branched spikes, seeds smooth and shining.*—A. oppositifolia *Koch in St.* 79. 9.—The most marked distinctive characters of this plant, with which I am but slightly acquainted, appear to be the curious l., the perigones, and the fl. in separate clusters. It may possibly be a maritime form of *A. patula.*—Sea-coast, rare? A. VIII. IX.

6. *A. patula* (L.!); st. mostly erect with ascending branches, *lower l. ovate-hastate* with 2 horizontally spreading lobes denticulate, upper l. lanceolate nearly entire, *perigone of the fr. triangular-rhomboidal* nearly entire slightly muricated on the back longer than the fr. and *collected into nearly simple interrupted spikes, seeds opaque rough.*—*E. B.* 936.! A. latifolia *Koch in St.* 79. 7. —Cultivated and waste ground, common. A. VI.—X.

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7. *A. microsperma* (W. and K.); st. erect or ascending with ascending branches, l. opposite, lower l. ovate-lanceolate with 2 horizontally spreading lobes denticulate, upper l. lanceolate-subulate hastate entire, *perigone of the fr. ovate-triangular acutish entire* rough on the back slightly longer than the fr. *collected in a branched densely-flowered panicle*, seeds smooth and shining.—*W. and K. Pl. rar. Hung.* t. 250. A. ruderalis, *Koch in St.* 79. 8.—Distinguished from all the others by the form of its perigone in conjunction with its l. and panicle.—Waste ground, rare. Bath. A. VII.—IX.

8. *A. deltoidea* (Bab.); st. erect with ascending branches, *l.* opposite *all hastate-triangular* with 2 descending lobes unequally *dentate or sinuate-dentate, perigone of the fr. ovate-triangular dentate muricated* on the back rather longer than the fr. collected into a many-flowered branched *dense panicle*, seeds smooth shining.—*E. B. S.* 2860.—Cultivated and waste land, in many places. A. VII.—X. E.

9. *A. rosea* (L.); st. spreading procumbent or ascending with spreading branches, *l.* mealy *ovate-triangular* somewhat 3-lobed unequally sinuate-dentate, upper l. lanceolate dentate and 3-lobed at the base or nearly entire, *perigone of the fr. rhomboidal-acute toothed* with 2 irregular rows of tubercles on the back, clusters axillary and terminal few-flowered, seeds minutely tubercular-rugose.—*Koch in St.* 80. 3.—The most variable species of the genus.—Sea-shore, common. A. VII.—IX.

10. *A. laciniata* (L.!); st. spreading procumbent with spreading branches, *l. triangular-rhomboidal* laciniated mealy beneath, *perigones of the fr. rhomboidal-3-lobed with the lateral lobes truncate* the back 3-ribbed the 2 lateral ribs often terminating in tubercles, seeds rough opaque.—*E. B.* 165. *Koch in St.* 80. 2.—The form of the perigone is the most remarkable character of this plant.—Sea-shore. A. VII.—IX.

7. Halimus *Wallr.*

1. *H. pedunculatus* (Wallr.); st. herbaceous wavy branched, l. obovate entire attenuated below, upper l. narrower, perigone of fr. on a long stalk inversely wedgeshaped with 2 large lateral and one small intermediate lobe.—*E. B.* 232. *Koch in Sm.* 8. 5. *Atriplex* Sm.—Muddy salt marshes near the east and south coasts, very rare. A. VIII. IX.

2. *H. portulacoides* (Wallr.); st. woody, l. obovate-lanceolate entire attenuated below, perigone of the fr. inversely triangular rounded below and shortly stalked with 3 equal lobes above and muricated on the lower part of the back.—*E. B.* 261. *Koch in St.* 80. 4. *Atriplex* Sm.—Common on the sea-shore. P. VIII.—X. *Sea Purslane.*

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Order LXVII. POLYGONEÆ.

Perianth 3-, 5-, or 6-parted, imbricate. Stam. definite from the base of the perianth. Ovary 1, free, with 1 erect ovule. Styles and stigmas several. Fr. not bursting, a nut, naked or covered by the enlarged perianth. Embryo inverted, usually on one side of farinaceous albumen; radicle remote from the hilum. —Stipules usually cohering in the shape of ochreæ.

1. RUMEX. *Perianth 6-parted*: the interior segments (pet.) large, connivent. Stam. 6, disposed in pairs. Styles 3. Nut 1-seeded, triquetrous, covered by the enlarged inner segments of the perianth, embryo lateral.

2. OXYRIA. *Perianth 4-parted*: 2 interior segments larger. Stam. 6. Stigmas 2. Nut 1-seeded, compressed, with a membranous wing, larger than the persistent segments of the perianth, embryo central.

3. POLYGONUM. *Perianth 5-parted.* Stam. 5—8. Styles 2—3. Nut 1-seeded, trigonous or compressed; *embryo lateral,* incurved; *cotyledons not contorted.*

4. FAGOPYRUM. Perianth 5-parted. Stam. 8. Styles 3. Nut 1-seeded, trigonous; *embryo central*; *cotyledons large, foliaceous contorto-plicate.*

1. RUMEX *Linn.*

* *Flowers perfect. Herbage not acid.* Lapathum *Tourn.* Docks.

1. ***R. maritimus*** (L.); ***enlarged pet. rhomboidal*** narrow, each with a lanceolate entire point a prominent narrow oblong tubercle and 2 setaceous *teeth* upon each side ***as long as the pet., whorls crowded*** many-flowered leafy, l. linear-lanceolate.—*E. B.* 725. —Nut very small with elliptical faces. Smith says that the pet. have 4 teeth on each side, I find only 2. A valuable set of fig. of the pet. of this genus will be found in *Leight. Fl. Shrop.*— Marshes principally near the sea. P. VII. VIII.

2. ***R. palustris*** (Sm.); ***enlarged pet. ovate-oblong,*** each with a lanceolate entire point a prominent narrow oblong tubercle and 3 setaceous *teeth* upon each side ***shorter than the pet., whorls distant*** many-flowered leafy, l. linear-lanceolate attenuated below. —*E. B.* 1932.—Nut 3 times as large as that of *R. maritimus,* with ovate faces. The teeth are too short in the E. B. figure. Koch says that there are only 2 teeth, I find 3.—Marshy places, rare. P. VII.—IX. E.

3. ***R. conglomeratus*** (Murr.); ***enlarged pet. linear-oblong obtuse,*** each bearing a large tubercle and entire or ***obscurely toothed at the base, whorls distant leafy,*** l. oblong pointed, lower l. cordate

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at the base.—*E. B.* 724. *R. acutus* Sm., L.? See *Prim. Fl. Sarn.* p. 85. *R. glomeratus* R. Icon. f. 552.—Nut ovate, acute. Enlarged pet. broadest near the base, the sides nearly parallel.—Wet places. P. VI.—VIII.

4. *R. sanguineus* (L.); *enlarged pet. narrowly oblong obtuse entire* only one bearing a tubercle, *whorls distant leafless*, l. ovate-lanceolate, lower l. cordate at the base.—*E. B.* 1533.—Nut ovate-elliptical, acute. Enlarged pet. broadest above their middle. A very few of the lower whorls often each accompanied by a small leaf. Veins of the l. bright red.—*β. viridis* (Sm.); veins of the l. green. *R. viridis* Sibth. *R. Nemolapathum* Ehrh.—Woody places, rare. β. Woods and road-sides, more frequent. P. VII.

5. *R. pulcher* (L.); *enlarged pet. triangular-ovate reticulated with raised nerves* toothed below one principally tubercled, *lower l. fiddle-shaped* or cordate-oblong obtuse, upper l. lanceolate acute, st. procumbent, branches spreading.—*E. B.* 1576.—St. straggling. Whorls distant, leafy. Nuts ovate, acute.—Dry waste places. P. VIII. IX. *Fiddle Dock.*

6. *R. obtusifolius* (L.); *enlarged pet.* ovate- or oblong-triangular obtuse toothed below *prolonged above into an oblong or ligulate entire point* one principally tubercled, *lower l. cordate-ovate obtuse*, upper l. oblong or lanceolate.—*E. B.* 1999.—Height 2—3 feet. Whorls distant, leafless. Nut elliptical, acute. Distinguished by its obtuse radical l. and the prolonged often ligulate point of the petals.—Pastures and waste ground. P. VII.—IX.

7. *R. pratensis* (M. and K.); *enlarged pet. unequal cordate dilated and toothed at the base with a small entire triangular point* one principally tubercled, l. oblong-lanceolate acute, lower l. slightly cordate below.—*E. B. S.* 2757.—Whorls approximated but not crowded, mostly leafless. "Nut elliptical." One of the enlarged pet. larger than the others, sometimes all 3 are equally tubercled.—Marshy places, rare. P. VII. E.

8. *R. crispus* (L.); *enlarged pet. cordate entire or crenulated* one principally tubercled, l. lanceolate acute wavy crisped.—*E. B.* 1998.—Height 2—3 feet. Nut elliptical. Enlarged pet. equal, sometimes all equally tubercled.—Road-sides, fields, &c. P. VI.—VIII. *Curled Dock.*

9. *R. aquaticus* (L.); *enlarged pet. broadly cordate membranous entire* or wavy *without tubercles*, l. lanceolate, lower l. somewhat cordate with *channeled petioles.*—*E. B. S.* 2698.—Height 3—4 feet. L. very large. Whorls crowded, mostly leafless, forming a large dense lobed panicle. Nut elliptical, acute. A very handsome plant.—Damp places in the north, preferring those liable to be flooded. Extending from York to the Butt of the Lewis. P. VII. VIII. E. S.

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10. *R. Hydrolapathum* (Huds.); *enlarged pet. ovate-triangular* nearly entire *all tubercled, l.* lanceolate acute *tapering below into a petiole which is flat above.*—*E. B.* 2104.—St. 3—5 feet high. L. often more than a foot long. Whorls crowded, mostly leafless. Nut elliptical.—Mr. Borrer possesses a plant under this name "from Lewes in Sussex," "with a cordate base to the root leaves," which will probably prove to be *R. maximus* Schreb. —Ditches and river-sides. P. VII. VIII. *Great Water Dock.*

*11. *R. alpinus* (L.); enlarged pet. cordate-ovate membranous entire or denticulated one bearing a small tubercle, *l. roundish-cordate obtuse with channeled petioles, upper l. ovate.*—*E. B. S.* 2694.—Whorls crowded, mostly leafless. Nut elliptical, acute. —Hellensburgh. Glen Luss. Dollar. Derbyshire. Formerly cultivated. P. VII. *Monk's Rhubarb.* E. S.

** *Flowers dicecious. Herbage acid.* Acetosella *Tourn.* Sorrels.

12. *R. acetosa* (L. ?); *enlarged pet.* roundish-cordate entire *membranous with a very minute tubercle* at the base, *sep. reflexed,* l. oblong sagittate, stipules laciniate-dentate.—*E. B.* 127. ?—Height 1—2 feet. Whorls leafless. Nut elliptical with acute angles. I noticed a very fleshy variety amongst rocks near the sea at Zennor, Cornwall.—It seems almost certain that this, which is the *R. Pseudo-acetosa* (Bert.), is a different species from Smith's and the Linnæan plant which I have not seen and which has more elongated leaves and ovate enlarged pet. each with an oblong green gland extending through more than half its length. Bertoloni (Fl. Ital. iv. 255.) states that that plant is cultivated in Italy. Has it been found in a wild state in Britain? —Meadows and pastures. P. V. VI.

13. *R. Acetosella* (L.); *petals scarcely enlarged ovate not tubercled, sep. ascending,* l. lanceolate-hastate or linear with entire lobes, stipules torn.—*E. B.* 1674.—Height 6—10 in. Whorls leafless. L. very variable in breadth.—Dry gravelly places. P. V.—VII. *Sheep's Sorrel.*

[*R. scutatus* (L.) which has hastate-ovate slightly fiddleshaped l. has been found "naturalized" at Craigmillar Castle near Edinburgh by *Mr. E. Young.*]

2. Oxyria *Hill.*

1. *O. reniformis* (Hook.). The only species.—*E. B.* 910.—St. 8—10 in. high, usually leafless. L. radical, reniform, slightly notched at the end with the nerves radiating from the insertion of the long footstalk. Pedicels thickening upwards, jointed in the middle. The permanent pet. not at all enlarged.—Lofty mountains. P. VII. VIII. *Mountain-sorrel.*

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3. POLYGONUM *Linn.*

* *Stem simple, bearing one spike. Ochreæ cylindrical, truncate. Root a rhizoma. Cotyledons accumbent. Nut triquetrous. Stam.* 8. *Styles* 3. Bistorta.

1. *P. Bistorta* (L.); *spike dense,* l. ovate subcordate, radical l. with winged footstalks, stam. half as long again as the perianth, nut triquetrous its faces ovate smooth.—*E. B.* 509.—St. 1—1½ foot high. Root large. Fl. flesh-coloured.—Moist meadows. P. VI. *Snakeweed.*

2. *P. viviparum* (L.); *spike lax bulbiferous* bearing fl. on its upper part, l. linear-lanceolate with revolute margins, lower l. elliptical with wingless footstalks, stam. twice as long as the perianth, nut triquetrous its faces ovate-lanceolate smooth and shining.—*E. B.* 669.—Height 4—8 in. Spike slender, the fl. on the lower part replaced by small red bulbs. Fl. flesh-coloured, sometimes very few in number.—Mountain pastures. P. VI. VII.

** *Ochreæ cylindrical, truncate. Root fibrous. Cotyledons accumbent. Nut compressed or triquetrous. Stam.* 4—8. *Styles* 2—3. *Fl. spiked, rarely capitate.—Fl. purple or white. L. without or with a central dark spot.* Persicaria.

3. *P. amphibium* (L.); spike dense ovate-cylindrical, l. stalked ovate oblong (floating) or oblong-lanceolate or narrow-lanceolate rough at the margins, ochreæ membranous narrow, nut compressed smooth shining, stam. 5, *root creeping.*—*E. B.* 436.—St. long when floating. Spikes generally solitary and terminal. Fl. rose-coloured. Very variable in the form of its leaves according to its habitation.—Floating or growing upon mud or on boggy ground. P. VII. VIII.

4. *P. lapathifolium* (L.); spikes oblong cylindrical dense, l. oblong-lanceolate or ovate attenuated at both ends glandular beneath, *ochreæ narrow not fringed the upper ones shortly fringed, peduncles* and perianths *glandular-scabrous, nut compressed* its faces roundish acuminate both hollowed smooth shining scarcely covered by the perianth, styles distinct at length divergent and reflexed, stam. 8.—*E. B.* 1382.—*α. pallidum*; l. all oblong-lanceolate wavy, spikes axillary or terminal solitary, bracts auricled glandular, joints of the st. scarcely thickened. *P. lapathifolium* R. Icon. f. 688. *P. pallidum* With., Fries.—*β. nodosum*; lower l. ovate or elliptical even, spikes usually 2 together, bracts auricled glabrous, joints of the st. tumid. *P. nodosum* R. Icon. f. 689., Fries.—The varieties appear to be quite connected by intermediate forms. According to Fries *var. α.* has the veins of its perianth arcuated and recurved at the end, and *var. β.* has them branched and converging at the end, but I have not been able to examine this character sufficiently to give an opinion

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upon it. Height 1—2 feet. Fl. pale. St. sometimes spotted and l. hoary.—Waste and damp places. A. VII. VIII.

5. *P. laxum* (R.); spikes elongated slender, l. lanceolate much attenuated at both ends wavy glandular beneath, *ochreæ lax shortly fringed* the floral ones horned, *peduncles* and perianths *glandular-scabrous, nut compressed* its faces roundish acuminate both hollowed shining a quarter shorter than the perianth, styles connected below at length divergent and reflexed.—*E. B. S.* 2822. *R. Icon.* f. 685.—Smaller than the preceding. St. often prostrate. Varies with spikes slender and interrupted (the typical form), spikes thicker continuous (represented in *E. B. S.*), and leaves white and woolly beneath.—Damp gravelly places. A. VII.—X. E.

6. *P. Persicaria* (L.); spikes compact ovate-oblong cylindrical, l. lanceolate plane minutely tubercled, *ochreæ lax strongly fringed, peduncles* and perianths *smooth*, nut compressed and gibbous on one side or trigonous its faces roundish acuminate smooth scarcely covered by the perianth, styles connected halfway up at length patent.—*E. B.* 756.—St. 1—2 feet high. L. more or less covered with hairs on both sides, sometimes woolly on the under side when it is *P. incanum* of authors. Peduncles sometimes slightly hairy but never glandular.—Waste and damp ground. A. VI.—X.

7. *P. mite* (Schrank); spikes erect filiform interrupted, l. lanceolate slightly wavy, *ochreæ lax* funnelshaped pilose *strongly fringed* without glands, *perianths without glands, nut* (large) *compressed its faces roughish* ovate acute rather shining *convex*, stam. 5, styles connected half-way up "arrect."——*E. B. S.* 2867.—St. 1—3 feet high, often much branched. Ochreæ all fringed. Spikes thickening upwards.—Wet places. Near Chelsea and Cambridge. A. VIII. IX. E.

8. *P. Hydropiper* (L.); spikes drooping filiform interrupted, l. lanceolate wavy, *ochreæ ventricose* glabrous fringed *glandular, perianths glandular*, nut (large) compressed its faces ovate acute rugose-punctate opaque convex, *styles* 2 nearly *distinct*.—*E. B.* 989.—St. 1—3 feet high. Upper ochreæ funnelshaped, scarcely fringed. Nut rounder than in *P. mite*. Spikes sometimes erect.—Wet places. A. VIII. IX.

9. *P. minus* (Huds.); *spikes erect filiform* slender lax, l. linear-lanceolate plane, *ochreæ close* pilose fringed *without glands, perianths without glands*, nut (small) compressed its faces ovate acute smooth shining convex, *style nearly simple*.—*E. B.* 1043.—St. procumbent, diffuse. Spikes ascending. Much smaller than the preceding. Ochreæ all fringed. Fl. and fr. only half the size of those of *P. Hydropiper*.—*β. erectum* (Bab.); st. erect, l. narrower.—Wet gravelly places. A. IX.

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*** *Ochreæ* 2-*lobed. Root fibrous. Cotyledons incumbent. Nut triquetrous. Stam.* 8. *Styles* 3. *Fl. axillary.* Avicularia.

10. *P. aviculare* (L.); *fl.* 1—3 *together* axillary, l. lanceolate or elliptical plane stalked, *ochreæ lanceolate* acute *with few distant simple nerves* at length torn, *nut* triquetrous striated *with raised points opaque shorter than the perianth.—E. B.* 1252.—L. usually blunt sometimes acute. The varieties are innumerable. Fl. either very distant and scattered, or so much collected as almost to form a leafy spike. St. erect or procumbent. A form with very short internodes and leaves, small fl. and much branched stems occurs on the sandy coasts of the south of England; another with more numerous fl., fleshy elongated st. and l. is found on the sea-shore and is probably the *P. littorale* Link. A corn-field plant with long slightly branched st. having very long internodes, scattered fl., long and much torn ochreæ, and linear-lanceolate acute l. is possibly *P. virgatum* Loisel.—Waste places. A. V.—IX. *Knot-grass.*

11. *P. Raii* (Bab.); fl. 1—3 together axillary, l. elliptic-lanceolate, *ochreæ* lanceolate acute *with few distant simple nerves* at length torn, *nut* triquetrous *smooth shining longer than the perianth.—E. B. S.* 2805. P. Roberti *Loisel?, Hook.* P. dubium *Deak. Florig. Brit.* ii. 576.—St. long, straggling, resembling *P. aviculare* in habit and ochreæ, but *P. maritimum* in fruit. Filaments broader at the base. A variety with smaller l. and fl. occurs in the Channel Islands. This may be *P. Roberti*, but I have great doubts on the subject as most of the French specimens thus named are the *P. aviculare var. littorale* mentioned above. Dr. Deakin appears not to have known that this plant was described.—Sandy sea-shores. A.? VIII. IX.

12. *P. maritimum* (L.); fl. 1—3 together axillary, l. elliptical-lanceolate coriaceous, *ochreæ lanceolate with numerous branched nerves* at length torn, nut triquetrous smooth shining longer than the perianth.—*E. B. S.* 2804.—St. procumbent, quite woody below, often much buried. Filaments broader at the base. Dr. Deakin (*Florig. Brit.* ii. 577.) quotes several stations for this plant all of which I suspect belong to *P. Raii*, as I presume does Killiney Bay quoted by Hooker.—On the sands of the sea-shore near Christchurch Head and in the Channel Islands. P. VIII. IX. E.

**** *Ochreæ semicylindrical. Root fibrous. Cotyledons accumbent, nut triquetrous. Stam.* 8. *Styles* 3. *Fl. racemose.* Tinaria.

13. *P. Convolvulus* (L.); st. twining angular, l. triangular-cordate, *segments of perianth bluntly keeled, nut* triquetrous *opaque*

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striated with minute points.—*E. B.* 941.—St. climbing or prostrate, much shorter than in the next species. The perianth is sometimes winged, when the plant is often taken for *P. dumetorum*.—Cultivated and waste land. A. VII. VIII.

14. *P. dumetorum* (L.); st. twining striated, l. triangular-cordate, *segments of perianth winged, nut triquetrous very smooth and shining.*—*E. B. S.* 2811.—St. climbing to the height of 4 or 5 feet.—Thickets in the south. A. VII. E.

4. Fagopyrum *Gaert.*

*1. *F. esculentum* (Moench); st. erect without prickles, fl. in cymose panicles, stam. 8, l. cordate-sagittate acute, nut triquetrous acute with entire angles.—*E. B.* 1044. *Polygonum Fagopyrum* Sm.—Naturalized in many places, being often sown as food for game. A. VII. VIII. *Buck-wheat.* E. S.

Order LXVIII. ELÆAGNEÆ.

Mostly dicœcious. Perianth tubular; limb 2—4-toothed, in male fl. 4-parted. Stam. 3 or more, inserted on the throat. Anth. 2-celled, nearly sessile, bursting on the inner side longitudinally. Ovary free, 1-celled, with 1 erect ovule. Fr. crustaceous, inclosed within the fleshy perigone. Albumen thin and fleshy. Radicle inferior.

1. Hippophaë. Dicœcious. Fl. with ovate scaly bracts. Male. Perianth of 2 leaves adhering by their points. Stam. 4 with very short filaments. Female. Perigone tubular, cloven at the summit. Style short. Stigma elongate. Nut 1-seeded, clothed with the large coloured berry-like perigone.

1. Hippophaë *Linn.*

1. *H. rhamnoides* (L.). The only species.—*E. B.* 425.—A thorny shrub with linear-lanceolate silvery leaves. Fl. appearing with the young leaves. Fr. orange. Height 4—6 feet.—Sandy spots and cliffs of the south-east and east coasts. Sh. V. *Sea Buckthorn.* E.

Order LXIX. THYMELEÆ.

Perianth tubular, inferior, often coloured, limb 4- rarely 5-cleft. Stam. definite, in the orifice of the tube. Anth. 2-celled, bursting longitudinally. Ovary free, 1-celled, with 1 pendulous ovule. Fr. a nut or drupe. Albumen 0 or thin and fleshy. Radicle superior.

1. Daphne. Perianth 4-fid, deciduous. Berry fleshy, 1-seeded.

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Stam. 8, shorter than the perianth, inserted in the tube in 2 rows.

1. DAPHNE *Linn.*

1. *D. Mezereum* (L.); fl. subternate lateral sessile, tube hairy, segments ovate acute.—*E. B.* 1381. *St.* 8.—Fl. purple, appearing before the lanceolate l. which are attenuated below. Berries red. A small shrub.—In woods, rare. Sh. III. *Mezereon.* E. S.

2. *D. Laureola* (L.); racemes axillary of about 5 glabrous drooping bracteated fl., l. lanceolate attenuated below glabrous evergreen.—*E. B.* 119.—A small shrub, 1—3 feet high, slightly branched, naked below. Fl. yellowish-green, funnelshaped. Berries bluish-black.—Woods and thickets. Sh. II.—IV.—E. S.

Order LXX. SANTALACEÆ.

Perianth adnate to the ovary; limb 3—5-fid; æstivation valvate. Stam. 4—5, opposite to and inserted at the base of the segments. Ovary 1-celled; ovules 2—4, pendulous from near the apex of a central placenta. Style 1. Fr. drupaceous, 1-seeded. Embryo in the axis of fleshy albumen.

1. THESIUM. Perianth 4—5-cleft, top- or funnelshaped, persistent. Stam. 5, with a fascicle of hairs at their base. Style 1. Stigma simple. Nut drupaceous, crowned with the persistent perianth.

1. THESIUM *Linn.*

1. *T. linophyllum* (L.); racemes branched or simple, fl. stalked, fr. oval-oblong stoutly ribbed and slightly reticulated crowned with the more or less inflexed perianth, l. narrowly linear-lanceolate 3-nerved.—*E. B.* 247.—Fr. equal to or rather longer than the persistent inflexed perianth. The middle bract in the lower part of the racemes longer than the flowers. Roots woody. Herbaceous st. spreading.—Chalky and limestone (oolite) hills. P. VI. VII. E.

[2. *T. humile* (Vahl); racemes spiked, *fl. nearly sessile,* fr. strongly ribbed and reticulated sessile crowned with the very short inflexed perianth, *l. fleshy linear* 1*-nerved.*—*R. Icon.* f. 947. —Fr. 4 or 5 times as long as the persistent inflexed perianth. Middle bract much longer than the flowers.—I gathered 2 specimens of this plant somewhere near Dawlish in Devonshire, in Aug. 1829, and it is introduced here in the hope that some botanist may rediscover it.]

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Order LXXI. ARISTOLOCHIEÆ.

Perianth adnate to the ovary below, tubular above, with a lobed dilated usually irregular limb. Stam. 6—12, epigynous. Ovary 3—6-celled. Style simple; stigma radiant. Fr. many-seeded. Seed with a minute embryo at the base of fleshy albumen.

1. ARISTOLOCHIA. Perianth tubular, swelling at the base; mouth dilated on one side. Anth. 6, adnate to the short columnar style under the 6-lobed stigma. Caps. 6-celled.

2. ASARUM. Perianth bellshaped, single, 3-fid. Stam. 12, inserted at the base of the style. Anth. attached to the middle of the filaments. Stigma 6-lobed. Caps. 6-celled.

1. ARISTOLOCHIA *Linn.*

*1. *A. Clematitis* (L.); root creeping, st. erect simple, l. cordate stalked glabrous, fl. aggregate.—*E. B.* 398. *St.* 6. 16.—Fl. pale yellow. Naturalized near old ruins. P. VII. VIII. *Birthwort.* E.

2. ASARUM *Linn.*

1. *A. europæum* (L.); l. reniform obtuse binate.—*E. B.* 1083. *St.* 2. 7.—St. short, with 2 leaves, between which there is a solitary drooping dull-green fl.; segments of the perianth ovate and incurved. Filaments extending beyond the anthers. Woods in the north, rare. P. V. *Asarabacca.* E. S.

Order LXXII. EMPETREÆ.

Dicœcious. Perianth of hypogynous scales imbricated in several rows. Stam. equal in number to the inner row and alternate with them, free. Ovary free, on a fleshy disk, 3—6-celled. Ovules solitary, ascending. Style 1. Stigma radiant. Fr. fleshy with bony cells. Embryo in the axis of fleshy albumen. Radicle inferior.

1. EMPETRUM. Cal. 3-parted. Pet. 3. Stam. 3 in the male fl. Style short, stigma dilated peltate with 6—9 rays. Berry globose, 1-celled. Seeds 6—9.

1. EMPETRUM *Linn.*

1. *E. nigrum* (L.); procumbent, l. linear-oblong their margins meeting in a white line beneath.—*E. B.* 526.—A small procumbent leafy heathlike shrub. Fl. axillary, small, purple. Stigma with 9 rays. Berries black.—Mountain heaths. Sh. V. *Crowberry.*

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Order LXXIII. EUPHORBIACEÆ.

Fl. usually monœcious. Perianth lobed or 0. Male flowers of 1 or more stamens. Anth. 2-celled. Fem. fl. of 1 superior 2—3-celled ovary. Styles 2—3. Stigma compound or simple. Caps. opening with elasticity; cells 2—3, with 1 or 2 suspended seeds in each. Embryo in fleshy albumen. Radicle superior.

1. BUXUS. Fl. monœcious. Male. Cal. 3-parted. *Pet.* 2. *Stam.* 4. Fem. Cal. 4-parted. Pet. 3. Caps. with 3 horns, 3-celled, 6-seeded.

2. EUPHORBIA. Fl. incomplete, collected into monœcious *heads consisting of* 1 *female and numerous male flowers.* Involucre campanulate, with 5 divisions and 5 alternate glands. Males naked consisting of a single stamen upon a pedicel, intermixed with scales and surrounding the female. Fem. a single pistil. Styles 3. Stigmas bifid. Caps. 3-celled, bursting at the back. Seeds solitary, pendulous.

3. MERCURIALIS. Fl. dicœious or monœcious. Perianth 3-parted. Male. *Stam.* 9—12. Fem. Style short, forked. *Caps. 2-celled.* Cells 1-seeded, bursting at the back.

1. BUXUS *Linn.*

1. *B. sempervirens* (L.); l. ovate-oblong coriaceous shining above, petioles ciliated, anth. ovate-sagittate.—*E. B.* 1341.—A small bushy tree of 10—12 feet in height.—Dry chalky hills, rare. T. IV.—VI. *Box.* E.

2. EUPHORBIA *Linn.*

* *Leaves with stipules.*

1. *E. Peplis* (L.); st. procumbent branched, heads axillary solitary, caps. keeled, seeds smooth, l. opposite stalked half-heartshaped nearly entire glabrous.—*E. B.* 2002. *R.* 4753.—St. usually much tinged with purple, glaucous. *The only British species which has stipules.*—Loose sand of the southern sea-coast. A. VII.—IX. E.

** *Stipules* 0 *in this and all the following sections. Involucral glands without membranous processes, roundish or transversely oval.*

† Seeds netted.

2. *E. Helioscopia* (L.); umbel 5-fid then 3-fid and 2-fid, bracts and l. membranous obovate-wedgeshaped serrated upwards, caps. smooth glabrous, seeds netted rugose.—*E. B.* 883. *R.* 4754.—Waste and cultivated ground. A. VI.—IX. *Sun Spurge.*

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†† Seeds smooth.

3. *E. platyphylla* (L.?); umbel 3—5-fid then 3-fid and 2-fid, bracts cordate mucronate minutely serrate, l. obovate-lanceolate acute minutely serrate, involucral glands oval, caps. warted, "seeds smooth obovate brown and shining."—*E. B.* 333 (starved). *R.* 4758. *E. stricta* Sm.—Involucre usually hairy externally. Midrib of the l. often bearing a few hairs beneath.—Koch distinguishes *E. platyphylla* and *E. stricta* by the former having hemispherical tubercles on the caps., and the latter cylindrical but very short ones. *E. stricta* (*R.* 4757.) which has narrower leaves and general bracts was found near Tintern by Mr. Borrer. —Corn-fields. A. VI.—VIII. E.

4. *E. hiberna* (L.); umbel about 5-fid, bracts and l. ovate or elliptical entire obtuse, invol.-glands reniform, caps. muricated glabrous, seeds obovate smooth somewhat shining brownish.—*E. B.* 1337. *R.* 4767.—Height 1—2 feet. L. broad, usually pilose beneath.—South of Ireland and Devon. P. VI. E. I.

5. *E. palustris* (L.); umbel irregular about 5-fid then 3-fid and 2-fid, *bracts all elliptical* glabrous, l. broadly lanceolate minutely serrate slightly hairy, invol.-glands transversely oval, *caps. warted* hairy, seeds obovate minutely punctate smooth.—*E. B. S.* 2787. *E. pilosa* L.—St. 2—4 feet high, leafy throughout, annual.—The form with glabrous l., the original *E. palustris* (L.), has not been found in Britain. See *Forst. in Linn. Trans.* xvii. 536.—In shady places near Bath where it was noticed by Lobel before the year 1576. P. V. VI. E.

*6. *E. coralloides* (L.); umbel 5-fid then 3-fid and 2-fid, *bracts ovate-oblong* the tertiary ones ovate all hairy, l. lanceolate minutely serrate woolly, invol.-glands transversely oval, *caps. nearly smooth* woolly, seeds obovate minutely punctate and with faint reticulate bands.—*E. B. S.* 2837.—Height 2—3 feet. Usually naked below.—Slinfold, Sussex. Supposed to have been introduced by the late Mr. Manningham. B.? V. VI. E.

*** *Involucral glands triangular-lunate or with* 2 *horns.*

† Seeds smooth. Bracts connate.

7. *E. amygdaloides* (L.); umbel 5- or many-fid then 2-fid, *bracts rounded connate*, l. ovate-lanceolate hairy beneath entire, invol.-glands lunate with 2 horns, caps. with very minute tubercles glabrous, seeds roundish-ovate smooth.—*E. B.* 256. *R.* 4799. *E. sylvatica* L.—St. 2—3 feet high, leafy, purple below, biennial. Invol.-glands yellow.—Woods and thickets. P. III. IV. *Wood Spurge.* E. I.

[8. *E. Characias* (L.); umbel many-fid then 2-fid, bracts rather pointed connate, l. linear-lanceolate downy entire,

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invol.-glands lunate, caps. with very minute tubercles hairy, seed oblong-ovate smooth.—*E. B.* 442. *R.* 4800.—Invol.-glands dark purple.—Not found in Needwood Forest. Has no claim to be considered as a native. Sh. III. IV.] O.

†† Seeds smooth. Bracts separate.

[9. *E. Cyparissias* (L.); umbel many-fid then 2-fid, bracts cordate acute, *l. linear* entire glabrous, invol.-glands lunate, caps. "nearly smooth, seeds obovate smooth."—*E. B.* 840. *R.* 4793.—Known by its narrow truly linear leaves.—A very doubtful native. Woods. P. VI. VII.] E.

10. *E. Esula* (L.); umbel many-fid then 2-fid, bracts cordate obtuse mucronate, *l. lanceolate or linear-lanceolate* glabrous *denticulate*, invol.-glands with 2 horns, "caps. scabrous, seeds obovate smooth."—*E. B.* 1399. *R.* 4791.—St. 12—18 in. high, leafy, with a few axillary leafy branches without flowers.—Woods, rare. P. VII. E. S.

11. *E. Paralias* (L.); umbel usually 5-fid then 2-fid, bracts rather reniform, *l. coriaceous elliptic-oblong*, invol.-glands 5 lunate with short points, caps. wrinkled, seeds smooth.—*E. B.* 195. *R.* 4789.—Root woody, tough. Flowering st. about a foot high, barren stems shorter numerous. L. closely imbricated.—Sandy sea-coast. P. VIII. IX. *Sea Spurge.*

††† Seeds rough, tubercled or pitted. Leaves alternate, scattered.

12. *E. portlandica* (L.); umbels 5-fid then 2-fid, bracts broadly rhomboidal acuminate, *l. obovate or obovate-lanceolate obtuse somewhat apiculate*, invol.-glands 4 lunate with long horns, caps. rough at the angles, seeds pitted and netted.—*E. B.* 441. *R.* 4787.—Glaucous, smooth. Scarcely a foot high. L. spreading. Seeds netted with white.—Sandy sea-coast. P. VII.—IX.

13. *E. Peplus* (L.); umbel trifid then forked, bracts ovate obtuse mucronate, *l. broadly-ovate subemarginate stalked*, lower l. suborbicular, invol.-glands 4 lunate with long horns, caps. smooth with thickened rugose keels, seeds oval pitted.—*E. B.* 959. *R.* 4773.—Light green, smooth, erect, 6—10 in. high. I do not find the intermediate smaller dots on the seeds mentioned by Reichenbach; with us they are arranged, beginning from the back, 4, 3, 1, or 3, 2, 1, with rarely 1 or more intermediate.—A common weed. A. VII. VIII. *Petty Spurge.*

14. *E. exigua* (L.); umbel trifid then forked, *bracts lanceolate* acute unequal below, *l. linear obtuse* with a mucro or acute, invol.-glands rounded with 2 horns, caps. smooth with slightly thickened and tubercular angles, seeds angular wrinkled.—*E. B.* 1336. *R.* 4777.—Height 3—6 in., usually branched at the base.—Corn-fields. A. VI.—VIII. N

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******** *Seeds rough. Leaves opposite.*

15. *E. Lathyris* (L.); umbel 3—4-fid then 2-fid, bracts oblong-ovate attenuated acute, l. linear-oblong sessile, upper l. cordate at the base, glands of the involucre lunate with blunt horns, caps. smooth with a dorsal line, seeds smooth.—*E. B.* 2255. *R.* 4783.—St. solitary, 2—3 feet high, purplish. L. numerous, in 4 rows.—Truly wild in a few stony and rocky woods, where it appears for 2 or 3 years after the bushes have been cut. Also naturalized in cultivated ground. B. VI. VII. *Caper Spurge.*—E. S.

3. MERCURIALIS *Linn.*

1. *M. perennis* (L.); st. simple, l. stalked ovate-oblong rough, female fl. on long common stalks, root creeping.—*E. B.* 1872. —St. about a foot high, usually naked below.—Woods and thickets. P. IV. V. *Perennial Mercury.*

2. *M. annua* (L.); st. branched, l. stalked ovate or ovate-oblong smooth, female fl. nearly sessile, root fibrous.—*E. B.* 559. *St.* 29. 16.—Height 6—12 in. Bright green. Much branched.—*β. ambigua* (Bab.); l. lanceolate, fl. whorled male and female intermixed. *M. ambigua* Linn. fil.—Waste and cultivated land. *β.* Jersey. Isle of Wight. *Dr. Bromfield.* A. VIII. IX. *Annual Mercury.*

Order LXXIV. URTICACEÆ.

Fl. monœcious, diœcious, or perfect. Perianth inferior 4—3—6-parted, imbricate, or entire in the female flowers. Stam. indefinite, free, inserted at the base of the perianth and opposite to its lobes. Ovary free, 1—2-celled; ovules solitary. Stigmas 1—2. Fr. not bursting.

Tribe I. *URTICEÆ.* Ovary 1-celled, seed erect, embryo straight.

1. PARIETARIA. Fl. polygamous, surrounded by an involucre. Perigone bellshaped, 4-parted. Stam. 4. Style filiform.

2. URTICA. Fl. monœcious or diœcious. Males in loose racemes; perianth 4-parted; stam. 4. Females in capitate racemes; perigone 2-parted; stigma sessile.

Tr. II. *CANNABINEÆ.* Ovary 1-celled, ovule pendulous (?), embryo curved or spiral.

3. HUMULUS. Fl. diœcious. Males with the perianth 5-parted; stam. 5. Females with the perigone scalelike, open, hidden by the scales of an oval catkin; stigmas 2, elongated.

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Tr. III. *ULMEÆ*. Ovary 2-celled, seed pendulous, embryo straight.

4. ULMUS. Fl. perfect. Perianth bell-shaped, 4—5-cleft, persistent. Stam. 5. Styles 2. Caps. compressed, winged all round.

Tribe I. *Urticeæ*.

1. PARIETARIA *Linn.*

1. *P. officinalis* (L.); l. ovate or oblong-ovate without lateral ribs at the base, cymes 2 axillary bifid, segments of involucre ovate obtuse.—*E. B.* 879.—L. alternate. Fl. small, reddish. "Involucre 2-leaved, each with 7 segments, 7-flowered, central fl. fertile, of the 3 fl. on each side the middle one is fertile but without stam. the other 2 with stam. and pistil." *W. Wilson.* Filaments jointed, elastic. Fr. black, shining.—*α. erecta* (Bab.); l. oblong-ovate attenuated at both ends, st. erect simple. *P. erecta* Koch, Reich.!—*β. diffusa* (Bab.); l. ovate acuminate at both ends, st. prostrate or ascending diffuse branched. *P. diffusa* Koch, Reich.!—On old walls and rubbish. P. VI.—IX. *Wall Pellitory.*

2. URTICA *Linn.*

†1. *U. pilulifera* (L.); *l.* opposite ovate or cordate acuminate *coarsely toothed*, stipules oblong-ovate, clusters of fr. globose stalked, seeds tubercled.—*E. B.* 149.—About towns and villages in the east of England. A. VI.—VIII. *Roman Nettle.* E. I.

†2. *U. Dodartii* (L.); *l.* opposite ovate or ovate-lanceolate *nearly entire*, stipules lanceolate, clusters of fr. globose stalked, seeds smooth.—In the east of England, rare. Copford, Essex. Upwell, Norf. Wisbeach, Cambr. See *Ann. Nat. Hist.* i. 195. A. VI.—VIII. E.

3. *U. urens* (L.); l. opposite elliptical serrate, *spikes* axillary *nearly simple two together shorter than the petiole*, seeds smooth opaque.—*E. B.* 1236.—Common weed. A. VI.—IX. *Small Nettle.*

4. *U. dioica* (L.); l. opposite cordate serrate, *spikes* axillary *panicled longer than the petioles*, seeds smooth opaque.—*E. B.* 1750.—The form of the l. is variable, being usually cordate but sometimes in *β. angustifolia* (W. and G.) ovate-lanceolate rounded but not cordate at the base.—Common. P. VI.—IX. *Great Nettle.*

Tribe II. *Cannabineæ*.

3. HUMULUS *Linn.*

1. *H. Lupulus* (L.). The only species.—*E. B.* 427.—Well known from its long climbing stems, opposite rough 3—5-lobed

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serrated leaves, and remarkable catkins.—Truly wild in many parts of England although extensively cultivated. P. VII. *Hop.*

Tribe III. *Ulmeæ.*

4. Ulmus *Linn.*

1. *U. campestris* (L. *i*); "*l. rhomboid-ovate* acuminate wedge-shaped and oblique at the base always scabrous above doubly and *irregularly serrated* downy beneath: serratures incurved, branches wiry slightly corky, when young light brown and pubescent, *fr. oblong deeply cloven* naked." *Lindl.*—*E. B.* 1886.—Height 60—80 feet. Habit tall and upright. Fr. oblong-wedge-shaped or nearly obovate.—See *Loudon's Arboretum Brit.* for a very full account of the varieties of this and the other species.—Southern parts of England. T. IV. V. *Small-leaved Elm.*

2. *U. suberosa* (Ehrh.); "*l. nearly orbicular acute* obliquely cordate at the base sharply *regularly* and doubly *serrated* always scabrous above pubescent beneath hairy in the axils, branches spreading bright brown winged with corky excrescences, when young very hairy, *fr. nearly round deeply cloven* naked." *Lindl.*—*E. B.* 2161.—Height 60—80 or 100 feet. More spreading than the preceding. Leighton says that the edges of the perianth are smooth, I find them to be ciliated in specimens from Mr. Borrer. Fr. with a sinus reaching to the seed.—Common. T. III.

*3. *U. major* (Sm.); "*l. ovate-acuminate* very oblique at the base sharply doubly and regularly serrated always scabrous above pubescent beneath with dense tufts of white hairs in the axils, branches spreading light brown winged with corky excrescences, when young nearly smooth, *fr. obovate slightly cloven* naked." *Lindl.*—*E. B.* 2542.—"Height 50—70 feet." Fr. with a small rounded sinus not reaching half-way to the seed.—Hedges. Supposed to have been introduced from Holland. T. III. *Dutch Elm.* E.

4. *U. carpinifolia* (Lindl.); "l. ovate-acuminate coriaceous strongly veined simply crenate serrate slightly oblique and cordate at the base shining but rather scabrous above smooth beneath, branches bright brown nearly smooth, fr. . . . .—Four miles from Stratford-on-Avon on the road to Alcester. T." *Lindl.* E.

5. *U. glabra* (Mill.); "l. ovate-lanceolate doubly and evenly crenate-serrate cuneate and oblique at the base becoming quite smooth above smooth or glandular beneath with a few hairs in the axils, branches light brown smooth wiry weeping, *fr. obovate deeply cloven* naked." *Lindl.*—*E. B.* 2248.—Height 60—80 feet. Fr. smaller than in the other species, cloven down to the seed. Branches spreading, rather drooping.—"*β. glandulosa*; l. very glandular beneath.—*γ. latifolia*; l. oblong acute very broad."

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Lindl.—Woods and hedges; β. near Ludlow. *Lindl.* γ. West Hatch, Essex. *Mr. E. Forster.* T. III. E.

6. *U. stricta* (Lindl.); "l. obovate cuspidate cuneate at the base evenly and nearly doubly crenate-serrate strongly veined coriaceous very smooth and shining above smooth beneath with hairy axils, branches bright brown smooth rigid erect very compact, fr. . . . . .—β. *parvifolia*; l. much smaller less oblique at the base finely and regularly crenate acuminate rather than cuspidate." *Lindl.*—Devon and Cornwall. T. *Cornish Elm.* E.

7. *U. montana* (Sm.); "l. obovate cuspidate doubly and coarsely serrate cuneate and nearly equal at the base always exceedingly scabrous above evenly downy beneath, branches not corky cinereous smooth, fr. rhomboid-oblong scarcely cloven naked." *Lindl.* —*E. B.* 1887.—Height 50—60 feet. Spreading. L. very large. —Woods and hedges. T. III. IV. *Wych Elm.*

Order LXXV. AMENTACEÆ.

Fl. moncœcious or dicœcious, rarely perfect. Barren fl. capitate or in catkins; sometimes with a membranous perianth. Fertile fl. clustered, solitary, or in catkins. Ovary usually simple. Stigmas 1 or more. Fruit as many as the ovaries, bony or membranaceous. Albumen usually wanting. Embryo straight or curved, plain. Radicle mostly superior.—Young leaves with stipules.

Tribe I. *SALICINEÆ.* Fl. all in catkins. Fr. naked, 2-valved, 1-celled, many-seeded. Seeds erect, comose.

1. SALIX. Catkins consisting of imbricated scales. Stam. 1—5. Fr. a 1-celled follicle with 1—2 glands at its base. Perianth 0.

2. POPULUS. Catkins with lacerated scales. Stam. 8—30, from a little oblique cupshaped perianth. Fr. almost 2-celled, with a cupshaped perigone.

Tr. II. *MYRICEÆ.* Fl. all in catkins. Fr. drupaceous, surrounded by the scales of the ovary become fleshy and adherent.

3. MYRICA. Catkins with concave scales. Stam. 4—8. Fr. a 1-celled 1-seeded drupe. Perianth 0.

Tr. III. *BETULINEÆ.* Fl. all in catkins. Fr. naked, indehiscent, membranous, 2-celled with solitary ovules. Seeds pendulous, not comose.

4. BETULA. Scales of the barren catkins ternate, the middle one bearing the stamens. Perianth 0. Scales of the fertile catkin 3-lobed, 3-flowered, membranous, deciduous. Styles 2. Ovary compressed. Fr. with a membranous margin, 1-seeded.

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5. ALNUS. Scales of the barren catkins 3-lobed, 3-flowered. Perianth 4-parted. Scales of the fertile catkin ovate, 2-flowered, coriaceous, persistent. Styles 2. Ovary compressed. Fr. not winged, 2-celled.

Tr. IV. *CUPULIFERÆ.* Male fl. in a catkin. Fem. solitary or aggregated or spiked. Perigone adnate to the ovarium, with a denticulated limb, sometimes evanescent, surrounded by a coriaceous involucre.

6. FAGUS. Barren fl. in a globose catkin. Perianth 5- or 6-fid. Stam. 10—15. Fertile fl. 2 together within a 4-lobed prickly involucre. Stigmas 3. Ovaries 3-cornered and 3-celled. Nut by abortion 1—2-seeded.

7. CASTANEA. Barren fl. in a long cylindrical catkin. Perianth 6-parted. Stam. 10—20. Fertile fl. 3 within a 4-lobed muricated involucre. Stigmas 6. Ovary 5—8-celled. Nut 1-celled with 1—3 seeds.

8. QUERCUS. Barren catkin long, pendulous, lax. Stam. 5—10. Perianth 5—7-cleft. Fertile fl. solitary with a cup-shaped scaly involucre. Stigmas 3. Ovary 3-celled. Nut 1-celled, 1-seeded, surrounded at the base by the enlarged cupshaped involucre.

9. CORYLUS. Barren catkin long, pendulous, cylindrical. Scales 3-lobed, middle lobe covering the 2 lateral lobes. Stam. 8. Anth. 1-celled. Perianth 0. Fertile fl. several, surrounded by a scaly involucre. Styles 2. Nut 1-seeded, inclosed in the enlarged coriaceous laciniated involucre.

10. CARPINUS. Barren catkin long, cylindrical. Scales roundish. Stam. 8—14. Fertile fl. in a lax catkin. Scales large, leafy, 3-lobed, 2-flowered. Styles 2. Nut ovate, 1-seeded.

Tribe I. *Salicineæ.*

1. SALIX *Linn.*[1]

I. PEDUNCULATÆ LATERALES.

Catkins on a leafy stalk, lateral, coetaneous.

* *Scales of the catkins deciduous.*

i. *Pentandræ* (Borr.). Stam. more than 3. L. glossy, glabrous. Trees.

1. *S. pentandra* (L.); L. ovate-elliptical or ovate-lanceolate

[1] I have ventured to place some plants as subordinate species which are considered as distinct by my able friend Mr. Borrer, but I do so with much hesitation, being very imperfectly acquainted with many of them.

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acuminate glandular-serrate, "*stip. ovate-oblong straight equal,*" stam. 5 or more, caps. ovate-attenuated glabrous, pedicel twice as long as the gland, style short, stig. bifid.—*E. B.* 1805.—Height 18—20 feet. Top of the petioles glandular. Foliage fragrant.—River-sides in the north. T. V. VI. *Bay-leaved Willow.*

2. *S. cuspidata* (Schultz); l. oblong-lanceolate acuminate glandular-serrate, "*stip. half cordate oblique,* stam. 3 or 4," caps. ovate attenuate glabrous, " pedicel 3 or 4 times as long as the gland," style short, stig. emarginate.—*Loudon's Arboretum* 1439. *S. Meyeriana* Willd.—Height 20—30 feet. Top of the petioles glandular. Stip. soon falling off in this and the preceding species.—" Shropshire. Leighton!" *Borr. MSS.* E.

ii. *Fragiles* (Borr.). Stam. 2. L. glabrous. Trees.

3. *S. decipiens* (Hoffm.); l. lanceolate pointed serrate, *floral l.* somewhat *obovate* recurved often *bluntish,* " germens tapering stalked glabrous, style longer than the cloven stigmas."—*E. B.* 1937.—Height 30—40 feet. Branches smooth, highly polished, reddish-brown; young shoots often crimson.—Damp meadows and osier-grounds. T. V.

4. *S. fragilis* (L.); l. ovate-lanceolate acute serrate, *floral l. similar,* " germens stalked oblong-ovate glabrous, style short, stigm. bifid."—*E. B.* 1807. *Loud.* 1444.—Height 80—90 feet. Branches round, very smooth, brown, brittle in the spring. Wood without value.—Marshy ground. T. IV. V. *Crack Willow.*

5. *S. russelliana* (Sm.); *l.* lanceolate *tapering at both ends,* floral l. similar, germ. stalked lanceolate acuminate glabrous, style as long as the bifid stigmas.—*E. B.* 1808. *Loud.* 1445.—Height 80—90 feet. Branches polished, round, smooth. L. gradually attenuated, very glaucous beneath. Wood and bark highly valuable.—Marshy woods. T. IV. V. *Bedford Willow.*

iii. *Albæ* (Borr.). Stam. 2. L. hairy with adpressed silky hairs when young. Catkins lax. Trees.

6. *S. alba* (L.); l. elliptic-lanceolate glandular-serrate acute silky on both sides when young, *germ. nearly sessile* ovate-acuminate glabrous, style short, stigmas thick recurved bifid.—*E. B.* 2430. *Loud.* 1447.—Height 50—80 feet. Branches silky.—*β. cærulea* (Sm.); l. less silky beneath. *E. B.* 2431.—*γ. vitellina* (Koch); branches bright yellow, l. shorter and broader. *S. vitellina* Sm., Borr.—Wet places. T. V. *White Willow.*

** *Scales of the catkins persistent.*

iv. *Triandræ* (Borr.). Stam. 3. L. lanceolate approaching to ovate, glabrous. Catkins lax. Osiers, naturally trees.

7. *S. undulata* (Ehrh.); l. lanceolate much acuminate serrate glabrous except when young, germ. stalked ovate acuminate,

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pedicel twice as long as the gland, *style elongate*, stig. bifid, *scales very shaggy*.—*S. lanceolata* (Sm.) *E. B.* 1436. Height 12—15 feet. L. sometimes undulated, often quite silky when young. Stip. half cordate acuminate. Germ. glabrous (sometimes downy in foreign specimens).—By streams. T. IV. V.

8. *S. triandra* (L.); l. oblong-lanceolate acute serrated glabrous, germen stalked oblong-ovate glabrous, *stigm. nearly sessile, scales glabrous*.—*E. B.* 1435.—Height 20—30 feet. Germen not furrowed. L. narrowing down to the stalk, somewhat paler beneath. L. lanceolate wavy paler and glaucous beneath. "S. triandra Curt." *Borr.*—β. *hoffmanniana*; l. somewhat rounded below ovate-lanceolate, stip. larger, scales shaggy towards their base. *S. hoffmanniana* (Sm.) *E. B. S.* 2620.—Wet woods and osier-grounds. T. V.

9. *S. amygdalina* (Sm.); l. oblong-ovate acute rounded below serrated glabrous, *germen* stalked ovate tumid *furrowed* glabrous, stigm. nearly sessile, scales glabrous, young shoots furrowed.—*E. B.* 1936.—Height 20—30 feet. Scales usually slightly hairy below.—By water. T. IV. V. E. S.

[*S. petiolaris* (Sm.) *E. B.* 1147. is stated by Lindley not to be a European plant and is omitted.]

II. Sessiles laterales.

Catkins lateral, sessile, without leaves or with 2 or 3 small leaves or leaflike bracts at the base, stalk sometimes elongated in fruit so as to resemble a leafy shoot but deciduous with the catkin.

v. *Purpureæ* (Koch, Borr.). Filament 1 with a 4-celled anther, or forked with 2 anthers each of 2 cells. *Anth. purple, ultimately black*. Catkins bracteated at the base; scales dark or purple at the end.

10. *S. purpurea* (L.); l. lanceolate broader upwards acuminate attenuated below finely serrate glabrous, germ. ovate very downy sessile, style very short, *stigm. ovate, anth.* 1, *stip.* 0.—"α. *S. purpurea* (Sm.); decumbent, twigs purple, fertile catkins very compact. *E. B.* 1388.—β. *S. woollgariana* (Borr.); erect, twigs yellowish-gray, l. cuneate-lanceolate glaucous beneath, stigmas obtuse. *E. B. S.* 2651.—γ. *S. ramulosa* (Borr.); erect, twigs pale yellowish, l. oblong-lanceolate paler beneath, stigmas sessile bifid.—δ. *S. lambertiana* (Sm.); erect, twigs purplish-glaucous, l. oblong-linear-lanceolate slightly narrowed and somewhat rounded below, stigmas ovate emarginate." *E. B.* 1359.—Marshes and river-banks. T. III. IV.

11. *S. Helix* (L.); l. oblong-lanceolate broader upwards acuminate attenuated below finely and slightly serrate glabrous,

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"germ. oblong-ovate very pubescent sessile, style short, *stigmas almost linear* emarginate," *anth.* 1, *stip.* 0.—*E. B.* 1343.—Height 10—12 feet. Twigs pale yellowish or tinged with purple, polished. "Style nearly as long as the stigmas." Closely allied to *S. lambertiana*, but that is stated to have "ovate-emarginate stigmas."—Wet places. T. III. IV. *Rose Willow.*

12. *S. rubra* (Huds.); l. linear-lanceolate acuminate glabrous green on both sides, germ. oblong-ovate very pubescent, *style elongated, stigmas ovate undivided, anth.* 2: *filaments combined below, stip. linear.*—*E. B.* 1145.—Height 10—20 feet. Twigs usually tawny. L. like those of *S. viminalis* but without the white pubescence.—Low meadows. T. IV. V.

13. *S. forbyana* (Sm.); l. lanceolate-oblong serrated glabrous, style nearly as long as the *linear divided stigmas, anth.* 1, *stip. linear-lanceolate.*—*E. B.* 1344.—Height 5—8 feet. Twigs grayish-yellow. L. rather paler and somewhat glaucous beneath. I am unacquainted with this plant.—Wet meadows. Sh. IV.

vi. *Viminales* (Borr.). Stam. 2. *Anth. permanently yellow.* Catkins bracteated at the base; scales discoloured at the end. Stalks of the caps. 0, or shorter than the gland. Pubescence of the l. silky.

14. *S. viminalis* (L.); l. linear or linear-lanceolate obscurely crenate white silky and shining beneath, *stip. small* sublanceolate, capsule very shortly stalked lanceolate-subulate, style elongated, stigmas undivided.—*E. B.* 1898.—Height 10—20 feet. Branches wandlike, long, slender. Gland longer than the stalk of the germen.—*β. intricata* (Leefe); l. broader, germen shorter and broader, style very short, stigmas from the first cloven reflexed and entangled.—*γ. stipularis* (Leefe); l. lanceolate, stip. linear-lanceolate denticulate or semicordate-acuminate, stigmas elongated.—Mr. Leefe gives several other forms which show how difficult it is to define the species of *Salix*.—Wet places. Sh. IV. V. *Common Osier.*

15. *S. stipularis* (Sm.); l. lanceolate very obscurely crenate white and downy beneath, *stip. half cordate acute,* caps. ovate nearly sessile, style very short (Sm.) elongate (Hook.), stigmas linear undivided.—*E. B.* 1214.—Height 10—20 feet with upright brittle reddish-brown twigs.—Wet places. Sh. III.

16. *S. smithiana* (Willd.); l. elongate-lanceolate obscurely crenate white with satiny pubescence beneath, *stip. small narrow* acute, *caps. stalked* lanceolate-subulate, pedicel as long as the gland, style elongate, stigmas long linear mostly entire.—*E. B.* 1509.—Twigs erect, somewhat downy, brittle.—Wet places. Sh. IV. V.

17. *S. rugosa* (Sm.); l. elongate-lanceolate scarcely crenate

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greenish-white and rather silky beneath, *stip. half cordate* acute, *caps. stalked* lanceolate-subulate, pedicel about as long as the gland, style moderate, stigmas linear broad undivided.—*S. holosericea* (H.) not *Willd.*—Wet places. Sh. IV. V. E.

18. *S. ferruginea* (And.); l. elongate-lanceolate undulate-denticulate greenish-white and rather silky beneath, *stip. half ovate or reniform*, caps. stalked lanceolate-subulate, pedicel about as long as the gland, style elongate, stigmas linear-oblong undivided.—*E. B. S.* 2665.—Height 12—15 feet. Bushy. This and the 2 preceding are very closely allied and probably ought to be combined. The stipules appear to be variable.—Wet places. Sh. IV. V. E. S.

vii. *Capreæ* (Koch). Stam. 2. Anth. permanently yellow. Catkins bracteated at the base; scales discoloured at the end. *Stalks of the caps. at least twice as long as the gland.* Trees or shrubs with an exposed trunk.

A. *Cinereæ* Borr., Fries.

19. *S. acuminata* (Sm.); l. lanceolate-oblong pointed finely toothed glaucous and downy beneath, stip. half cordate, germen ovate tapering, *style conspicuous*, stigmas ovate undivided, *buds downy.*—*E. B.* 1434. *Loud.* 1464.—Height 25—30 feet.—Damp woods and hedges. Sh. or T. IV.

20. *S. cinerea* (L.); l. elliptic- or lanceolate-obovate pointed subserrate downy beneath, stip. half cordate, germen lanceolate-subulate, *style very short*, stigmas simple or bifid, *buds downy.*—*E. B.* 1897.—Height 20—30 feet.—*α. S. cinerea* (Sm.); l. obovate-lanceolate rather thick somewhat rusty beneath, stip. half cordate acute, style very short thick.—*E. B.* 1897.—*β. S. aquatica* (Sm.); l. obovate-elliptical thinner downy and rather glaucous beneath, stip. reniform, style obsolete.—*E. B.* 1437.—*γ. S. oleifolia* (Sm.); l. obovate-lanceolate rather rigid downy and rather glaucous beneath, stip. small rounded. *E. B.* 1402.—Very variable and I think these 3 form only 1 species.—Wet places. T. or Sh. III. IV. *Sallow.*

21. *S. aurita* (L.); *l. obovate* repando-dentate recurvo-apiculate *wrinkled* more or less downy above pubescent beneath, *stip.* roundish or reniform *large stalked*, germens lanceolate-subulate, style very short, stig. generally entire, *buds glabrous* or slightly downy.—*E. B.* 1487.—Height 3—4 feet. L. very rugged, margins deflexed, point hooked.—Damp woods. Sh. IV. V.

22. *S. Caprea* (L.); *l. ovate* or elliptical *flat* acute crenate-serrate wavy at the margins deep green with a downy midrib whitish above and cottony beneath, stip. subreniform, germens lanceolate-subulate, style very short, *buds glabrous.*—*E. B.* 1488.—A small tree, 15—30 feet high. Catkins very thick, blunt.

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L. large and broad.—Woods and hedges in dryish places. T. IV. V. *Great Sallow.*

23. *S. sphacelata* (Sm.); l. elliptic-obovate even veiny entire or slightly serrate downy on both sides discoloured at the point, stip. half cordate toothed erect, germens stalked ovate-lanceolate, stigmas notched longer than the style.—*E. B.* 2333.—With this I am unacquainted, unless an imperfect specimen from Brae Mar is it.—T. IV. V. S.

B. *Nigricantes* Borr.

This section forms the *S. nigricans* of Fries and Koch. I must confess myself unable to distinguish the species satisfactorily and have compiled the characters from those given by Smith and Borrer.

24. *S. cotinifolia* (Sm.); l. roundish-elliptical pointed obsoletely toothed slightly downy above glaucous and downy beneath, stip. rounded or ovate, *germens* ovate-lanceolate *silky*, style elongate deeply bifid, stigmas notched.—*E. B.* 1403.—A low shrub, upright. L. rectangularly reticulated beneath. Young shoots downy. Norfolk. Glenluce and Forfar. Sh. IV. V. E. S.

25. *S. hirta* (Sm.); l. elliptic-heartshaped pointed finely toothed downy on both sides, *stip. half heartshaped* flat toothed *nearly glabrous*, germens....., style shortly bifid, stigmas emarginate.—*E. B.* 1404.—A small tree. Young shoots and petioles with white cottony hair. Norfolk. Castle Eden, Yorkshire. T. IV. V. E.

26. *S. nigricans* (Sm.); *l.* elliptic-lanceolate acute crenate *glabrous* with a downy midrib (even when young) glaucous with a few hairs beneath, *stip.* large obliquely cordate serrated *smooth*, *germ.* lanceolate *downy*, style longer than the stigmas.—*E. B.* 1213.—A bushy shrub. Bunch of young leaves tipped with a tuft of deciduous down. Young shoots downy.—Wrongay fen, Norf. Shobden Court, Hereford. Sh. IV.

27. *S. forsteriana* (Sm.); l. elliptic-obovate acute notched and very slightly downy except upon the midrib where it is dense glaucous beneath, *stip.* rounded recurved *vaulted*, *germ.* awlshaped *silky*, style as long as the blunt emarginate stigmas.—*E. B.* 2344.—A small tree. Young shoots minutely downy. Germens crowded. Catkins elongated.—Breadalbane Mountains. Newcastle-upon-Tyne. T. V. VI. E. S.

28. *S. rupestris* (Donn); *l.* obovate acute serrated flat even *silky on both sides*, *stip.* small *ovate hairy*, *germens* awlshaped *silky*, style as long as the blunt undivided stigmas.—*E. B.* 2342.—A trailing or depressed shrub. Young shoots minutely downy. "Germens silky or naked." *Borr.*—Blanchland, Northumb. Rocks of Craigalleach and Mael Gwyrdy. E. S.

29. *S. propinqua* (Borr.); l. elliptical obscurely crenate nearly

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flat, nearly naked on both sides pale green beneath, *stip.* small *vaulted glandulose, germens silky towards the point,* style longer than the notched stigmas.—*E. B. S.* 2729.—An upright shrub. Young shoots finely downy. Veins of the l. slightly sunken.—Locality unknown. Sh. ?

30. *S. petræa* (And.); l. oblong serrated keeled reticulated hairy and glaucous beneath, *stip.* large half cordate *flattish* with a few glands, *germens* naked *wrinkled towards the point,* style divided longer than the bifid stigmas.—*E. B. S.* 2725.—Shrub 6—15 feet high. Young shoots densely hairy. L. ultimately nearly losing their glaucous tint.—Breadalbane Mountains. Sh. V. S.

31. *S. andersoniana* (Sm.); l. elliptic-oblong acute finely notched upper ones downy on both sides and rather glaucous beneath, stip. small half ovate erect flat at length vaulted glandulose, floral l. almost as long as the catkin when in flower, *germens naked,* style divided longer than the diverging stigmas.—*E. B.* 2343.—A bushy shrub.—Breadalbane Mountains. Newcastle-upon-Tyne. Sh. V. VI. E. S.

32. *S. Damascena* (Forbes); l. ovate or rhomboidal finely notched upper ones silky *not at all glaucous* beneath, stip. half heartshaped vaulted glandulose, floral l. shorter than the flowering catkin, *germens naked,* style divided longer than the diverging stigmas.—*E. B. S.* 2709.—An upright shrub very nearly allied to the last. Young shoots hairy.—South of Scotland. Sh. IV. S.

33. *S. tenuifolia* (L.); l. elliptical or oblong flat with a recurved point crenate reticulated with sunken veins slightly hairy glaucous beneath, stip. half heartshaped or ovate, *germens* and their stalk *naked,* style a little longer than the short cloven stigmas.—*E. B. S.* 2795.—A much branched spreading shrub, connecting the *Nigricantes* and *Bicolores.*—Kirkby Lonsdale bridge. Sh. V. E.

C. *Hastatæ* Borr.

Low shrubs with broad l. and very silky catkins.

34. *S. hastata* (L.); l. broadly elliptical waved thin and crackling quite glabrous glaucous beneath, stip. unequally heartshaped longer than the petioles, germens subulate glabrous, style elongated, scales shaggy.—*S. malifolia* (Sm.) *E. B.* 1617.—A tall shrub with crooked brittle twigs. L. shortly acuminated, narrowed towards the base.—Sands of Barrie near Dundee. Norfolk? Sh. V. S. E. ?

35. *S. lanata* (L.); *l. broadly oval* pointed entire *shaggy beneath,* stip. oval, germens conical glabrous, catkins terminal or placed just below the ends of the branches and above the leafbuds

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sessile, fertile ones bracteated.—*E. B. S.* 2624.—A low and very beautiful shrub.—Glen Dole and Glen Callater, Clova Mountains. Sh. V. S.

D. *Bicolores* Borr.

This section corresponds nearly with the *S. bicolor* of Koch, and it must be confessed that the species are very closely allied and might probably be reduced in number advantageously by a person who was thoroughly acquainted with them.

36. *S. laurina* (Sm.); l. elliptic-oblong acute *obsoletely crenate* naked except when young dark green above glaucous beneath, stip. pointed glandulose, *germens and stalk silky.*—*S. bicolor* Sm. *E. B.* 1806.—Twigs wandlike, purple. Stalk of the caps. as long or longer than the blunt scale.—*β. S. tenuior* (Borr.); l. obovate-lanceolate, catkins shorter and more slender lax, stalks of the caps. shorter than the oblong scales, style longer than the ovate stigmas.—*E. B. S.* 2650.—Twigs paler and leaves more spreading.—Woods and thickets. *β.* Killin. Sh. IV. V.

37. *S. radicans* (Sm.); l. oblong- or elliptic-lanceolate acute *with wavy serratures* naked glaucous beneath, stip. small lunate glandulose, *germens* (and stalks?) *silky.*—*S. phylicifolia* Sm. *E. B.* 1958.—A low shrub with spreading decumbent branches.—Breadalbane Mountains. Sh. V. S.

38. *S. borreriana* (Sm.); *l. lanceolate tapering* to both ends with shallow serratures naked glaucous beneath, stip. small obliquely lanceolate glandulose, *germens* on long stalks *naked.*—*E. B. S.* 2619.—A much branched shrub with ash-coloured shoots. L. very different from those of *S. radicans*, serratures shallow and nearly even.—Glen Nevis and Breadalbane. Sh. IV. S.

39. *S. tetrapla* (Walk.); l. lanceolate tapering at both ends unequally serrated nearly naked glaucous beneath, stip. small half heartshaped, *germens naked: their summits and stalks silky.*—*E. B. S.* 2702.—An upright shrub with straight spreading twigs. L. very acute.—Breadalbane. Sh. V. S.

40. *S. davalliana* (Sm.); l. obovate-lanceolate very acutely pointed obscurely toothed naked somewhat glaucous beneath, stip. very minute, *germens and stalks silky.*—*E. B. S.* 2701.—A bushy shrub with ascending branches.—Scotland. Sh. V. S.

41. *S. laxiflora* (Borr.); *l. broadly obovate* very slightly toothed narrowed to the base naked rather glaucous beneath: upper ones acute, stip. small concave, *lower part of the germens and stalks naked.*—*E. B. S.* 2749.—A treelike shrub.—Killin. Sh. V. S.

42. *S. weigelliana* (Willd.); l. roundish or elliptical with a short point obsoletely crenate naked, stip. small, *germens and*

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stalks silky.—E. B. S. 2656.—An upright shrub.— β. *S. nitens* (And.); l. ovate or elliptical acute slightly serrate. *E. B. S.* 2655.—Mountainous places. β. Scotland and Teesdale. Sh. IV. E. S.

43. *S. croweana* (Sm.); l. elliptical pointed obsoletely serrate naked green and shining above glaucous beneath, stip. half heart-shaped, germens silky (Sm.) glabrous (Borr.).—*E. B.* 1146.—A bushy shrub. Stam. combined below.—Swampy places. Sh. V. VI. E.

44. *S. bicolor* (Ehrh.); l. elliptical pointed obsoletely serrate slightly hairy green and shining above glaucous beneath, stip. crescent-shaped serrated, germens....., filaments slightly bearded at the base.—*S. tenuifolia* Sm. *E. B.* 2186.—A bushy spreading shrub.—Glen Lyon. Ettrick. Sh. IV. S.

45. *S. phillyreifolia* (Borr.); l. elliptic-lanceolate acute at each end strongly serrate naked glaucous beneath, stip. small, *germens and stalks naked.—E. B. S.* 2660.—An upright much branched shrub.—Highlands of Inverness and Perth. Sh. IV. S.

46. *S. dicksoniana* (Sm.); l. elliptic acute slightly toothed glabrous glaucous beneath, young branches very glabrous, catkins ovate short erect, germens ovate silky, stigmas nearly sessile.—*E. B.* 1390.—Scotland. Sh. IV. S.

viii. *Fuscæ.* Stam. 2. Anth. fuscous-yellow when empty. Catkins bracteated at the base; scales discoloured at the end. Stalks of the caps. very rarely not longer than the gland. *Shrubs with a subterranean creeping trunk.*

A. *Rosmarinifoliæ* (Borr.). Small erect shrubs.

47. *S. rosmarinifolia* (L.); l. linear-lanceolate silky beneath quite entire or remotely glandular-toothed, *stip. lanceolate*, germens *silky lanceolate*-acuminate, *scales short* hairy, "style about as long as the linear-divided stigmas."—*E. B.* 1365.—A slender upright shrub, 3 feet high. Catkins very short, at first drooping. Whole plant becoming nearly black in drying. Style short.—"Several parts of the north," Sm. Sh. IV. ?

48. *S. angustifolia* (Wulf. ?); l. linear-lanceolate silky beneath when young afterwards nearly glabrous remotely glandular-toothed, *stip. very minute* (on strong radical shoots lanceolate with the l. ovate *Sm.*), germens *densely silky ovate-acuminate, scales* very villose and *nearly as long as the young germens*, style as long as the erect lanceolate entire stigmas.—*S. Arbuscula* Sm. *E. B.* 1366. not *Koch, Fries.*—A shrub about a foot high. L. very much attenuated at both ends, except on the radical shoots mentioned by Sm. which I have not seen.—Clova. Dumfries. Sh. IV. S.

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49. *S. doniana* (Sm.); *l. lanceolate or obovate-lanceolate* acute slightly serrate livid with scattered silky hairs beneath, *stip. linear*, germens very silky ovate-oblong longer than the bearded oblong-ovate scale, *style very short, stigmas short emarginate.*—*E. B.* S. 2599.—Shrub about 6 feet high. "Stam. monadelphous, anth. ultimately luteo-fuscous not black." Closely allied to the *Purpureæ*.—Scotland. Sh. V. S.

B. *Fuscæ* (Borr.). Small procumbent shrubs.

50. *S. fusca* (L. ?); l. elliptical or elliptic-lanceolate acute entire or minutely glandular-serrate glaucous and silky beneath, germens lanceolate silky, style moderate, stigmas ovate bifid.—*α. vulgaris*; l. elliptic-lanceolate with a straight point, st. depressed with short upright branches. *S. repens* Sm. *E. B.* 183.—*β. fusca*; l. oblong-oval straight, st. decumbent below then erect much branched. *S. fusca* Sm. *E. B.* 1960.—*γ. prostrata*; l. elliptic-oblong with a twisted point, st. prostrate with elongated straight branches. *S. prostrata* Sm. *E. B.* 1959.—*δ. ascendens*; l. elliptical with a recurved point, st. recumbent with long somewhat ascending branches. *S. ascendens* Sm. *E. B.* 1962. *S. parvifolia* Sm. *E. B.* 1961.—*ε. incubacea*; l. elliptic-oblong with a twisted point, stip. stalked ovate acute. *S. incubacea* L. *E. B. S.* 2600.—*ζ. argentea*; l. broadly elliptical with a twisted point, stip. stalked oval. *S. argentea* Sm. *E. B.* 1364.—Heaths at various elevations. Sh. III. IV.

C. *Ambiguæ* Borr.

51. *S. ambigua* (Ehrh.); l. oval obovate or lanceolate slightly toothed with a recurved point somewhat rugose above soft and silky beneath, *stip.* stalked *half ovate acute*, germens lanceolate-subulate silky, style very short, stigmas short at length cloven.—*E. B. S.* 2733.—A small decumbent shrub.—*β. major*; l. obovate very silky on both sides.—*γ. spathulata*; l. obovate moderately hairy or silky, style somewhat elongated.—*δ. undulata*; l. ovate-lanceolate.—Gravelly heaths. Sh. V.

ix. *Arbusculæ*. Stam. 2. Anth. yellow or brown when empty. Catkins subsessile bracteated at the base; scales discoloured at the end. *Stalks of the capsules* 0 *or shorter than the gland. Shrubs with an exposed trunk.*

A. *Vaccinifoliæ* Borr.

52. *S. Arbuscula* (L., Fries, Koch); *l.* lanceolate-ovate or ovate *glabrous* smooth glaucous and opaque beneath finely *serrated*, germens oblong-ovate silky, stigmas bifid.—I believe that the following 4 plants are forms of one species.—*α. S. carinata* (Sm.); l. ovate finely toothed minutely veined folded into a keel, catkins cylindrical with rounded hairy scales. *E. B.* 1363.—

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β. *S. prunifolia* (Sm.); l. broadly ovate toothed smooth on both sides, st. erect much branched. *E. B.* 1361.—γ. *S. venulosa* (Sm.); l. ovate toothed naked reticulated with prominent veins above, st. erect much branched. *E. B.* 1362.—δ. *S. vaccinii-folia* (Sm.); l. lanceolate-ovate serrated smooth and even above silky beneath, st. decumbent. *E. B.* 2341.—Highlands. Sh. IV.—VI. S.

B. *Glaucæ* Borr.

53. *S. arenaria* (L.); l. lanceolate or elliptical subacuminate *entire cottony* or silky beneath with crisped hairs wrinkled above and when young downy, germens ovate-lanceolate silky, stigmas linear. *S. Lapponum* L., Fries, Koch.—I follow Koch in reducing 3 of Smith's species to one.—α. *S. arenaria* (L.); l. ovate-lanceolate reticulated and somewhat downy above veined and woolly beneath, style as long as the sessile woolly germen, stigmas linear. *E. B.* 1809. Germen with a long slender reddish style.—β. *S. stuartiana* (Sm.); l. ovate-lanceolate shaggy above densely silky almost cottony beneath, style as long as the almost sessile woolly germen, stigmas capillary deeply divided. *E. B.* 2586.—γ. *S. glauca* (Sm.); l. ovate-lanceolate even and nearly smooth above woolly and snow-white beneath, germens sessile woolly, style very short with thick ovate stigmas. *E. B.* 1810. Germen blunter. Style elongating and the stigmas becoming linear and deeply cloven as the fruit ripens. *S. glauca* L., Wahl., Koch, has subterminal catkins with very long leafy stalks and belongs to the next section.—Breadalbane and Clova Mountains. Sh. VI. VII. S.

III. Pedunculatæ terminales.

Catkins on long leafy persistent shoots from the terminal or subterminal buds. *Chamelyx* Fries.

x. *Myrsinites* (Borr.). Catkins at the extremity of the terminal shoot, or of those from the last but one or 2 of the buds, but in such a manner as to appear to be an elongation of the branch. Small bushy plants.

54. *S. Myrsinites* (L.); l. elliptical or lanceolate serrate shining often hairy with prominent veins, germens subsessile ovate-subulate downy, style elongate.—*S. Myrsinites* β. Sm.—St. much branching. L. resembling those of *Betula nana*.—β. ? *S. betulifolia* (Forst.); l. elliptical serrate nearly smooth, catkins short, style short, stigmas cloven. *S. Myrsinites* Sm. *E. B.* 1360.—Highlands. β. a doubtful native. *Borr.* Sh. VI. S.

55. *S. procumbens* (Forbes); l. oval minutely serrated bright green and shining on both sides, *catkins elongated cylindrical*, germens subsessile ovate-lanceolate downy, style short deeply

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cloven, stigmas bifid.—*E. B. S.* 2753.—Scales of the catkin nearly black, longer and more hairy than in *S. Myrsinites*. A low procumbent much branched shrub.—Highlands. Sh. VI. S.

xi. *Herbaceæ*. Catkins exactly terminal upon a shoot from the terminal bud.—A. *Reticulatæ* Borr.

56. *S. reticulata* (L.); *l.* nearly orbicular-elliptical very obtuse *entire* reticulated with veins and glaucous beneath, *germens* sessile oblong-ovate *downy*, style short, stigmas bifid.—*E. B.* 1908.—A procumbent much branched shrub. Catkins opposite to the terminal leaf, separated from it by a bud, upon long peduncles.—Lofty mountains. Sh. VI. E. S.

B. *Herbaceæ* Borr.

57. *S. herbacea* (L.); *l.* orbicular or oval obtuse or retuse *serrate* shining glabrous reticulated with veins, *germens* subsessile ovate-conical *glabrous*, style short, stigmas bifid.—*E. B.* 1907.—A very minute herblike shrub; the stems extend far amongst loose stones on the tops of mountains.—Alpine situations. Sh. VI. E. S.

[Fries (Mant. i. 76.) states that he has received *S. retusa* β. *serpyllifolia* from the late Mr. Winch, gathered in the Breadalbane Mountains. It may be known from *S. herbacea* by its narrower leaves, stalked germens and longer styles.]

2. Populus *Linn.*

1. *P. alba* (L.); l. roundish-cordate angularly toothed cottony and snowy-white beneath, l. of the young shoots cordate palmately 5-lobed, *stig.* 4.—*E. B.* 1618.—A large tree, producing numerous suckers. L. generally lobed, scales of the catkins notched at the end.—Damp woods. T. IV. *White Poplar. Abele.*

2. *P. canescens* (Sm.); l. roundish angularly toothed cottony and white beneath, l. of the young shoots cordate-ovate undivided, *stig.* 8.—*E. B.* 1619.—A large tree, producing numerous suckers. L. not lobed except occasionally the youngest. Scales of the catkins deeply cut at the end.—Damp woods. T. IV. *Gray Poplar.* E.

3. *P. tremula* (L.); l. nearly round acute serrate glabrous on both sides, young l. slightly downy, *stig.* 4 *erect auricled in pairs.*—*E. B.* 1909.—A rather large tree, producing numerous suckers. Peduncles vertically compressed. Scales of the catkins deeply palmately cut. Stig. erect, each pair furnished with a common descending wavy lobe.—Woods. T. III. IV. *Aspen.*

4. *P. nigra* (L.); *l. triangular* acuminate serrate glabrous, "catkins lax cylindrical, *stig.* 4 *simple spreading.*"—*E. B.* 1910.

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—A large tree without suckers. L. remarkably triangular. Young shoots glabrous. Scales of the catkins palmately cut smooth.—Damp places, river-banks. T. III. *Black Poplar.*

Tribe II. *Myriceæ.*

3. MYRICA *Linn.*

1. *M. Gale* (L.); l. lanceolate broader upwards serrate, st. shrubby.—*E. B.* 562.—Height 3—4 feet. Bushy. Catkins sessile, erect. Fr. with resinous glands. L. fragrant when bruised. —Bogs. Sh. V. *Sweet Gale. Bog Myrtle.*

Tribe III. *Betulineæ.*

4. BETULA *Linn.*

1. *B. alba* (L.); *l. rhomboid-triangular* doubly serrate acuminate, scales of the fem. catkins 3-lobed, lateral lobes deflexed, middle lobe ascending, *fr. obovate-elliptical shorter than the rounded membranous margin.*—*E. B.* 2198 (upper fig.). *B. alba* Fries!—L. usually glabrous, often covered with resinous spots above, always having a manifest tendency to a rhomboidal form. Young shoots mostly with resinous tubercles. Readily distinguished from the following by its leaves but more certainly by the fruit. Young twigs often very long and pendulous.—Rather common. T. IV. V. *White Birch.*

2. *B. glutinosa* (Fries!); *l. cordate-ovate* unequally serrate acute, scales of the fem. catkins 3-lobed, lateral lobes ascending, middle lobe patent or reflexed, *fr. broadly obovate as long as the rounded membranous margin.*—*E. B.* 2198 (lower fig.). *B. pubescens* Koch.—L. usually glabrous always more or less ovate. Not so elegant a tree as the preceding and often little more than a bush. Twigs sometimes pendulous.—*β. pubescens* (Fr.); l. peduncles and young twigs downy. *B. pubescens* Ehrh.—Common. T. IV. V. *Common Birch.*

3. *B. nana* (L.); *l. orbicular crenate* glabrous: crenations obtuse, scales of the fem. catkin digitate-trifid divided almost to their base: lobes equal, fr. orbicular with a very narrow membranous margin.—*E. B.* 2326.?—A small procumbent shrub with minute leaves and little catkins. *B. nana* Fries!, Reich.!, Tausch!—*β. Linnæi*; scales of the fem. catkins 3-lobed divided through only half their length, fr. elliptical with a narrow membranous margin. *B. nana* Linn.! Herb. Exactly resembling var. *α.* except in the structure of the fructification. Probably a distinct species.—Turfy places in the highlands. Of *α.* the only specimens that I have seen are from Ben Lawers. *β.* is common. Sh. V. *Dwarf Birch.* S.

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5. Alnus *Tourn.*

1. *A. glutinosa* (Gaert.); l. roundish obtuse wavy serrated glutinous rather abrupt with a wedgeshaped base, axils of the veins beneath downy.—*E. B.* 1508. *St.* 29. 15.—Trunk and branches crooked. Male catkins long and pendent; fem. ones short, ovate or oblong, very persistent. A moderately large tree. Wet places and river-banks. T. III. *Alder.*

Tribe IV. *Cupuliferæ.*

6. Fagus *Linn.*

1. *F. sylvatica* (L.); l. ovate glabrous obsoletely dentate ciliate on the edges.—*E. B.* 1846.—A large tree.—Woods, particularly on chalky soils. T. III. IV. *Beech.*

7. Castanea *Tourn.*

†1. *C. vulgaris* (Lam.); l. oblong-lanceolate acuminate mucronate-serrate glabrous on each side.—*E. B.* 886.—Height 50—80 feet. A magnificent tree.—A doubtful native, often planted. T. V. *Sweet Chestnut.* E.

8. Quercus *Linn.*

1. *Q. Robur* (L.); "young branches glabrous, l. on short footstalks cuneately oblong pinnatifid slightly pubescent beneath, lobes oblong rounded with deep narrow somewhat acute sinuses, bases biauriculate equal, fem. catkins on long peduncles, fr. oblong."—*E. B.* 1342. *Martyn Rust.* 10.—Woods. T. IV. V. *Common Oak.*

2. *Q. intermedia* (Don); "young branches glabrous, l. on long footstalks cuneately oblong slightly pinnatifid glaucous and copiously clothed with fine starry pubescence beneath, lobes short rounded sinuses shallow spreading obtuse, base obtuse unequal, fem. catkins on very short peduncles, fr. oblong."—*Mart.* 11.—Hilly woods. T. IV. V. *Intermediate Oak. Norwood Oak.*

3. *Q. sessiliflora* (Salisb.); "young branches pubescent, l. on long footstalks oblong pinnatifid glabrous beneath, lobes ovate-oblong obtuse sinuses rather deep forming a somewhat acute angle, base unequal obtuse or frequently more or less attenuated, fem. catkins sessile, fr. ovate."—*E. B.* 1845. *Mart.* 12.—Hilly woods. T. IV. V. *Sessile-fruited Oak. Durmast Oak.*

I have thought it advisable to adopt the characters of our supposed three oaks as given by the lamented Prof. Don in *Leighton's Shropshire Flora* and must refer to that excellent work for a detailed account of them. See also a highly valuable paper by Dr. Greville in *Trans. Bot. Soc. Edin.* i. 69.

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9. Corylus *Linn.*

1. *C. Avellana* (L.); stip. oblong obtuse, l. roundish-cordate acuminate, involucre of the ovoid fr. campanulate spreading torn at the margin.—*E. B.* 723.—A shrubby tree. Young twigs hairy and glandular. L. downy beneath. Male catkins long, pendulous. Fem. fl. in ovate buds. Stigmas bright crimson.—Hedges and copses. Sh. III. IV. *Hazel Nut.*

10. Carpinus *Linn.*

1. *C. Betulus* (L.); scales of the fruit 3-parted: segments lanceolate the middle one longest.—*E. B.* 2032.—A small tree. L. ovate, acute, plaited when young, deeply and sharply doubly serrate.—Damp clayey woods and hedges. T. V. *Hornbeam.*

Order LXXVI. CONIFERÆ.

Fl. monœcious or dicœcious. Barren fl. of 1 or more monadelphous stamens, collected in a deciduous catkin about a common axis. Anth. of 2 or more lobes bursting outwards, often terminated by a scalelike crest. Fertile fl. usually in cones sometimes solitary. Ovary spread open in the shape of a scale and placed in the axil of a membranous bract in the solitary fl. apparently wanting. Ovules naked, in pairs on the face of the ovary and inverted, or (in the solitary fl.) erect. Fr. a cone, or solitary naked seed. Testa hard crustaceous. Embryo in the axis of fleshy albumen. Radicle next the apex. Ligneous tissue marked with circular disks.

Tribe I. *TAXINEÆ.* Male fl. in catkins. Fem. fl. solitary, naked or bracteated.

1. Taxus. Catkins of male fl. oval, scaly below, flowering at the top. Stam. numerous. Anth. peltate, 4—6-celled. Fem. fl. scaly below. Style 0. Ovule surrounded at the base by a ring which becomes a fleshy cupshaped disk surrounding the seed.

Tr. II. *CUPRESSINEÆ.* Male fl. in catkins. Anth. 4—7, inserted on the edge of the subpeltate scales. Fem. fl. few in a small catkin. Ovules pointing from the axis.

2. Juniperus. Anth. 4—7, 1-celled, inserted on the lower edge of the scales. Scales of the fem. catkin imbricated, lower ones barren. Ovules 3, surrounded by a 3-fid fleshy involucre formed of the 3 uppermost connate scales of the catkin.

Tr. III. *ABIETINEÆ.* Fl. in catkins. Anth. 2, 1-celled, adnate to the underside of the scales. Fem. fl. of a flat

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scalelike open ovary in the axil of a membranous scale. Ovules in pairs on the inner face of the ovary, pointing towards the axis.

3. PINUS. Male catkins crowded, racemose. Scales of the cone (carpels) thickened and angular at the end. Seeds with a crustaceous coat, winged.

Tribe I. *Taxineæ.*

1. TAXUS *Linn.*

1. *T. baccata* (L.); l. 2-ranked crowded linear acute, fl. axillary sessile.—*E. B.* 746.—A low tree, trunk often attaining a very considerable bulk. Fr. roundish.—β. *fastigiata*; l. scattered, fr. oblong, branches fastigiate.—Mountainous woods and limestone cliffs. β. North of Ireland. T. III. IV. *Yew.* β. *Irish Yew.*

Tribe II. *Cupressineæ.*

2. JUNIPERUS *Linn.*

1. *J. communis* (L.); l. 3 in each whorl spreading linear-subulate mucronate keeled longer than the ripe fruit.—*E. B.* 1100.—Fruticose, erect. L. with a broad flat shallow channel above, the keel beneath with a slender furrow. Berries black, tinged with blue, about half the length of the leaves.—Dry hills, especially on a calcareous soil. Sh. V. *Juniper.*

2. *J. nana* (Willd.); l. 3 in each whorl incurved linear-lanceolate mucronate keeled equalling the ripe fruit.—*E. B. S.* 2743.—A prostrate shrub with longer berries and shorter leaves than the last.—Mountains. Sh. V.

Tribe III. *Abietineæ.*

3. PINUS *Linn.*

1. *P. sylvestris* (L.); l. in pairs, young cones stalked recurved ovate-conical, wing thrice as long as the seed.—*E. B.* 2460.—A lofty tree.—Highlands. T. V. VI. *Scotch Fir.* Cones referred by the late Prof. Don to *P. Mughus* (a variety of this species) have been found at considerable depths in the Irish bogs. S.

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Class II.

MONOCOTYLEDONES or ENDOGENÆ.

Stems with no distinction of bark wood and pith, destitute of medullary rays, consisting of cellular tissue amongst which the vascular tissue is mixed in bundles, increasing by the addition of new matter at the centre. Leaves mostly alternate and sheathing with parallel simple veins connected by smaller transverse ones. Cotyledon one, or if more they are alternate.

Subclass I. FLORIDÆ.

Floral envelopes whorled.

Order LXXVII. HYDROCHARIDEÆ.

Sep. 3, herbaceous. Pet. 3, regular, coloured. Stam. epigynous. Ovary solitary, inferior; placentas parietal, sometimes projecting into the centre of the ovary. Stigmas 3—6. Fr. dry, or succulent, not bursting, 1- or spuriously many-celled. Seeds numerous. Albumen 0. Embryo straight, cylindrical. Radicle at the opposite end from the hilum,

1. Hydrocharis. Dicecious. Cal. 3-parted. Pet. 3. Male with 9—12 stamens in 3 rows surrounding 3 abortive styles. Fem. with 3 abortive filaments and 3 fleshy scales surrounding the 6 deeply bifid styles. Caps. inferior, 6-celled, many-seeded.

2. Stratiotes. Dicecious. Cal. 3-parted. Pet. 3. Male with 12 or more stamens surrounded by numerous abortive ones. Fem. with 6 deeply bifid styles. Berry inferior, 6-celled, many-seeded.

1. Hydrocharis *Linn.*

1. *H. Morsus-ranæ* (L.). The only species.—*E. B.* 808. *St.* 44. 16.—Floating upon the water. Creeping. L. stalked, roundish-reniform, entire. Fl. white, delicate, springing from a pellucid membranous sheath. Seeds covered with beautiful promi-

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nent spirally twisted cells.—Ponds and ditches. P. VII. VIII. *Frog-bit.*

2. STRATIOTES *Linn.*

1. *S. aloides* (L.); l. swordshaped-triangular ciliate-spinous.—*E. B.* 379.—Root creeping extensively in the mud and sending up numerous rigid leaves like those of an aloe. Stalk compressed, 5 or 6 in. high with 2 l. near its summit. Fl. white, delicate. The plant rises to the surface of the water to flower and sinks again afterwards.—Ditches in the east of England; naturalized in Scotland. P. VII. *Water Soldier.* E.

Order LXXVIII. ORCHIDEÆ.

Sep. 3, usually coloured. Pet. 3, 2 above, 1 below (lip) frequently lobed and spurred and unlike the others. Stam. 3, united in a central column, 2 lateral abortive, or (in *Cypripedium*) the middle one abortive. Pollen powdery or adhering in masses. Ovary 1-celled, inferior, with 3 parietal placentas. Style forming part of the column with the stam.; stigma a viscid space in front of the column. Caps. 3-valved. Seeds very numerous, minute. Testa loose, reticulated.

Tribe I. *OPHRYDINEÆ.* Pollen-masses in divisible lobes which are indefinite in number and waxy. Anthers wholly adnate.

* *Cells of the anther with a rostellate process between their bases.*

1. ORCHIS. Perianth ringent, hooded. Lip 3-lobed, spurred. Glands of the stalks of the pollen-masses in a common pouch.
2. GYMNADENIA. Glands of the pollen-masses without a pouch. Otherwise like *Orchis.*
3. ACERAS. Lip without a spur. Otherwise like *Orchis.*

** *Cells of the anther without any process between their bases.*

4. HABENARIA. Perianth ringent, hooded. Lip 3-lobed or entire, spurred. Glands of the stalks of the pollen-masses exserted, naked.
5. OPHRYS. Perianth patent. Lip variously lobed, without a spur. Glands of the stalks of the pollen-masses each in a distinct pouch.
6. HERMINIUM. Perianth bellshaped, segments all erect. Lip 3-lobed, tumid beneath at the base, without a spur. Glands of the stalks of the pollen-masses exserted, naked.

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Tr. II. *LIMODOREÆ*. Pollen-masses granular: granules in only a slight state of cohesion. Anthers free.

* *Stigma rostellated.*

7. GOODYERA. Perianth ringent. Lip saccate at the base, entire, included. Stigma subcordate. Rostellum erect, bipartite, with a large squarish appendage between its slender segments.

8. SPIRANTHES. Perianth ringent. Lip channeled, clawed, fringed. Stigma roundish. Rostellum straight, bifid with an elongate linear appendage between its points.

9. LISTERA. Perianth ringent. Lip deflexed, 2-lobed. Stigma transverse. Rostellum elongated, entire, acute, with a minute globose appendage at its somewhat reflexed apex. Column very short.

10. NEOTTIA. Perianth hooded. Lip deflexed, 2-lobed, saccate at the base. Stigma transverse. Rostellum flat, broad, prominent, entire, without an appendage. Column elongated.

11. EPIPACTIS. Perianth patent. Lip interrupted, the basal division concave, terminal one larger with 2 projecting plates at its base above. Stigma nearly square. Rostellum short, terminated by a globose appendage. Anth. terminal, erect, sessile, 2-celled: cells without septa. Column short. Germen straight, on a twisted stalk.

** *Stigma without a rostellum.*

12. CEPHALANTHERA. Perianth converging (in *C. rubra* spreading). Lip interrupted, the basal division saccate, jointed to the recurved terminal one. Stigma transverse. Rostellum 0. Anth. terminal, erect, moveable, shortly and thickly stalked, 2-celled: cells with imperfect septa. Column elongated. Germen sessile, twisted.

Tr. III. *MALAXIDEÆ*. Pollen cohering in granules or masses which are definite in number and at length waxy and confluent. Anther free.

13. CORALLORRHIZA. Perianth converging. Lip with 2 prominent longitudinal ridges at the base, 3-lobed, lateral lobes small, middle lobe large slightly emarginate. Spur short or obsolete. Stigma triangular. Rostellum obsolete but with a large globose appendage. Anth. terminal, 2-celled, opening transversely. Column elongated. Germen slightly stalked, straight.

14. MALAXIS. Perianth patent. Lip posterior, erect, entire, similar to the pet., smaller than the sepals. Spur 0. Stigma rhomboidal. Rostellum short, entire, acute. Anth. terminal,

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continuous with the short column out of the apex of which it appears as if it were excavated, with 2 imperfect cells. Pollen-masses connected at their apex. Germen upon a twisted stalk.

15. STURMIA. Perianth patent. Lip anterior, erect or oblique, entire, dilated, much larger than the sepals. Spur 0. Stigma roundish. Rostellum obsolete, but with an appendage consisting of 2 tubercles. Anth. terminal, deciduous, moveable like a lid, with 2 distinct cells. Column elongated. Germen on a twisted stalk.

Tr. IV. *CYPRIPEDIEÆ*. Intermediate anther barren petaloid, 2 lateral anthers perfect.

16. CYPRIPEDIUM. Perianth patent. Lip ventricose, inflated. Column trifid above, the lateral lobes bearing stamens, middle lobe sterile dilated. Two lower (lateral) sepals combined. Germen straight.

Tribe I. *Ophrydineæ.*

1. ORCHIS *Linn.*

* *Glands of the pollen-masses separate, lip erect in æstivation.*

† Bracts 1-nerved, tubers undivided.

‡ *Lip 3-lobed, lobes broad and short.*

1. *O. Morio* (L.); lip 3-lobed crenulate: middle lobe truncate-emarginate, spur ascending subclavate rather shorter than the germen, *sep. and pet. obtuse connivent*, anth. obovate rather acute. —*E. B.* 2059.—St. 6—12 in. high. L. lanceolate, lower spreading, upper adpressed. Fl. few, in a lax spike, purple; sep. and pet. marked with green veins, converging so as to form a sort of helmet; lip pale in the middle, spotted with purple. Fl. sometimes white.—Meadows and pastures. P. V. VI. *Green-winged Meadow Orchis.* E. I.

2. *O. mascula* (L.); lip 3-lobed crenate: middle lobe emarginate with a central tooth, spur ascending cylindrical rather longer than the germen, *sep. acute*: 2 *outer reflexed upwards*, pet. converging, anth. obcordate apiculate.—*E. B.* 631.—St. a foot high. L. mostly radical, elliptic-lanceolate, usually spotted with purple. Fl. in a lax spike, purple; centre of the lip whitish at the base, spotted and downy. Sep. and pet. without veins.—Woods and pastures. P. VI. *Early purple Orchis.*

‡ *Lip 3-lobed, central lobe dilated bifid and often with an intermediate tooth.*

3. *O. fusca* (Jacq.); lip 3-parted with raised rough dark points,

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lateral lobes linear-oblong, middle lobe gradually dilated from the base large obcordate with an intermediate tooth: *segments ovate-subtruncate* crenate or erose, spur about half as long as the germen, sep. connivent including the pet.—*E. B.* 16. *St.* 41. 13.—St. 1—2 feet high. L. ovate-oblong, obtuse. Fl. in a rather dense spike; helmet with slightly confluent segments, dark purple, variegated; lip paler.—Chalky bushy hills in Kent. P. V.—E.

4. *O. militaris* (L.); lip 3-parted with raised rough dark points, *lateral lobes linear, middle lobe linear dilated and bifid* at the end with an intermediate tooth: *segments oblong* diverging, spur about half as long as the germen, sep. converging including the pet.—*E. B. S.* 2675.—Smaller than the preceding. Helmet ash-coloured. Lip purple, white in the middle, spotted, terminal lobe narrow and linear for some distance from its base, its segments with several nerves.—Chalky hills in Berks., Oxf., Buck., and near Tring, Herts. P. V. E.

5. *O. macra* (Lindl.); lip 3-parted with small rough crystalline points, *segments linear narrow, middle lobe with* 2 *long narrow* 1-*nerved linear segments* and an intermediate setaceous tooth, spur half as long as the germen, sep. converging including the pet.—*O. tephrosanthos* Bich. *E. B.* 1873. *Hook. Fl. Lond.* n. s. t. 82. not *Vill.*—More slender than the preceding. Helmet pale purplish. Lip remarkable for its very slender segments, dark purple.—Chalky hills in Berks., Oxf., and Kent. P. V. E.

6. *O. ustulata* (L.); lip 3-parted, lateral lobes linear-oblong, middle lobe bifid: segments linear-oblong, *spur ½ the length of the germen*, sep. connivent including the pet.—*E. B.* 18. *St.* 12.—St. 4—6 in. high. L. lanceolate, acute. Spike oblong, dense. Fl. small, numerous. Helmet roundish, dark purple, inclosing the linear-spathulate obtuse pet. Lip white with purple spots.—Calcareous hills. P. VI. E.

†† Bracts with 3 or more nerves, tubers undivided.

7. *O. laxiflora* (Lam.); lip 3-lobed, lateral lobes rounded and crenulated in front longer than the truncate slightly emarginate intermediate lobe, spur shorter than the germen cylindrical emarginate, 2 lateral sep. reflexed upwards, pet. connivent, anth. obcordate apiculate.—*E. B. S.* 2828.—St. 1—2 feet high, round, angular and rough upwards. L. lanceolate or linear-lanceolate. Bracts 3—5-nerved. Spike elongate, lax. Fl. bright purple.—Wet meadows and bogs in Jersey and Guernsey. P. V. VI. O.

††† Bracts with 3 or more nerves, tubers palmate.

8. *O. maculata* (L.); *lip* 3-lobed *flat* crenate, spur subulate shorter than the germen, 3 sep. patent, pet. connivent, st. solid.—*E. B.* 632.—St. about a foot high. L. usually spotted with purple, lower obtuse or rarely acute, upper linear-lanceolate

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resembling the bracts. Spike ovate, afterwards elongated; lower bracts longer than the germen, upper equalling it. Fl. pale purple, more or less streaked with purple. Middle sep. with a flat acute point. Lip deeply 3-lobed, lateral lobes rounded, middle lobe longer and narrower. Damp pastures and heaths. P. V. VI. *Spotted palmate Orchis.*

9. *O. latifolia* (L.); *lip obscurely 3-lobed: sides reflexed* crenate, spur subulate shorter than the germen, two lateral sep. patent, pet. connivent, st. hollow.—About a foot high. L. seldom spotted. Bracts longer than the fl. Middle sep. usually hooded at the end.—The three following forms are considered as species by many authors and deserve attention.—*α. majalis*; l. spreading oblong obtuse, upper l. lanceolate acute, lower bracts longer than flowers. *O. majalis* R.! Icon. t. 563. *O. latifolia* Koch, Sm.!—*β. angustifolia*; l. erect approaching the st. lanceolate attenuated hooded at the end not spotted, all the bracts longer than the flowers. *O. angustifolia* W. and G., Koch. *O. latifolia* R.! Icon. t. 564. *E. B.* 2308.—*γ. Traunsteineri*; l. erecto-patent linear-lanceolate, upper l. linear erect, lower bracts equalling the fl. upper ones shorter. *O. Traunsteineri* Koch. *O. angustifolia* R.! Icon. t. 848. "*O. incarnata* L.," Fries.—Marshes and damp meadows. *γ.* in mountainous places. P. VI. *Marsh Orchis.*

** Anacamptis (Rich.). *Glands of the pollen-masses united, lip erect in æstivation.*

10. *O. pyramidalis* (L.); *lip* with 3 equal lobes and 2 *tubercles at the base above,* lobes oblong truncate, middle lobe sometimes emarginate, spur filiform longer than the germen, lateral sep. ovate-lanceolate acute spreading, bracts 3-nerved, tubers undivided.—*E. B.* 110.—St. 12—18 in. high. L. linear-lanceolate, acute. Spike pyramidal, afterwards cylindrical. Fl. rose-purple, sometimes white.—Chalky pastures. P. VII. *Pyramidal Orchis.*

*** Himanthoglossum (Spr.). *Glands of the pollen-masses united, lip spiral in æstivation.*

11. *O. hircina* (Scop.); lip 3-parted downy, segments linear, middle one very long twisted, lateral much shorter wavy, spur very short.—*E. B.* 34.—A most singular plant, 2—3 feet high. "Cal. green, spotted with dull purple internally." Lip purplish white and spotted at the base.—Bushy chalk hills in Kent and Surrey, very rare. P. V. *Lizard Orchis.* E.

2. GYMNADENIA *R. Br.*

1. *G. conopsea* (R. Br.); lip 3-lobed, *lobes equal* entire obtuse, lateral sep. spreading, spur filiform twice as long as the germen, tubers palmate.—*E. B.* 10.—St. a foot high. L. linear-lan-

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ceolate. Spike cylindrical elongated. Bracts 3-nerved. Fl. rose-purple, fragrant. Pollen-cells open in front and below, stopped below by oblong glutinous valves to the broader ends of which the glands of the pollen-masses are attached. These valves are quite distinct from the stigma.—Hilly pastures. P. VI. VII.

2. *G. albida* (Rich.); lip 3-lobed, *lobes unequal* entire, middle lobe longest and broadest, sep. and lateral pet. connivent, spur much shorter than the germen, tubers clustered.—*Habenaria* R. Br. *Orchis* Sm. *E. B.* 505. *Peristylus* Lindl.—St. 6—12 in. high. L. oblong, obtuse, upper lanceolate acute. Spike elongated, cylindrical, dense. Bracts 3-nerved. Fl. small, yellowish white, fragrant.—Mountain pastures. P. VI. VII.

3. Aceras *R. Br.*

1. *A. anthropophora* (R. Br.); lip 3-parted, segments linear-filiform, middle one bifid.—*E. B.* 29.—Tubers ovate. Height 8—12 in. Spike long, lax. Fl. greenish-yellow. Sep. ovate, acute, connivent, margined with purple, including the linear-lanceolate obtuse petals.—Dry chalky places. P. VI. E.

4. Habenaria *R. Br.*

1. *H. viridis* (R. Br.); spur very short 2-lobed, *lip linear flat* 3-pointed middle point the shortest.—*E. B.* 94. *R. Icon.* f. 813. *Peristylus* Lindl. *Himantoglossum* Reich.—Lip with 3 tubercles at its base, 1 central, 2 lateral. Stigma oblong, slightly emarginate above. Glands of the pollen-masses connected by an elevated transverse line. Sep. and pet. connivent. Tubers palmate. Fl. green, lip browner. St. 6—8 in. high.—Pastures. P. VI. VII. *Frog Orchis.*

2. *H. bifolia* (Bab.); spur twice as long as the germen, *lip linear entire*, pet. connivent obtuse, anth. oblong truncate: *pollen-masses parallel.*—*E. B. S.* 2806. *R. Icon.* f. 1143. *Platanthera* Rich., Koch, Lindl.—About a foot high. Radical l. usually 2, elliptical. Stem l. small, lanceolate, resembling the bracts. Spike slender. Fl. white. Central line between the cells of the anth. a furrow in front and a keel behind. Stigma truncate, emarginate with pointed lobes.—Heathy places. P. VI. VII. *Lesser Butterfly Orchis.*

3. *H. chlorantha* (Bab.); spur twice as long as the germen, lip linear entire, pet. connivent obtuse, *anth.* truncate *twice as broad at its base as at its top*: *pollen-masses* ascending obliquely *converging upwards.*—*E. B.* 22. *R. Icon.* f. 1145. *Platanthera* Rich., Koch, Lindl.—Usually taller and stouter than the preceding. Spike usually lax but sometimes dense. Fl. larger. Central line between the cells of the anth. a prominent ridge in

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front and a groove behind. Stigma very broad slightly pointed in the middle.—See *Linn. Trans.* xvii. 462. and *Ann. Nat. Hist.* i. 374.—Moist woods and thickets. P. V. VI. *Great Butterfly Orchis.*

5. Ophrys *Linn.*

1. *O. apifera* (Huds.); lip tumid 5-lobed, 2 lower lobes prominent and with a hairy base, 2 intermediate reflexed truncate, *terminal acute elongated reflexed*, anth. with a hooked point, pet. oblong bluntish downy.—*E. B.* 383. *R. Icon.* f. 1159.—About a foot high. Fl. few, large, rather distant. Sep. whitish, tinged with purple. Lip velvety, brown variegated with yellow.—On chalky and calcareous soils. P. VI. VII. *Bee Orchis.* E. I.

2. *O. arachnites* (Reichard); lip somewhat tumid entire or with 4 shallow inflexed marginal lobes and a *terminal inflexed flat rather heartshaped appendage*, anth. with a straight or hooked point, *pet. deltoid downy.*—*E. B. S.* 2596. O. fuciflora *R. Icon.* f. 1162—1165.—Sep. pinkish. Lip velvety, dark purple, variegated with yellow: appendage green, never reflexed.—Chalk downs near Folkstone and Sittingbourne, Kent. P. IV.—VI. *Late Spider Orchis.* E.

3. *O. aranifera* (Huds.); lip tumid obscurely 3-lobed: *middle lobe large emarginate without an appendage*, anth. acute, *pet. linear glabrous.*—*E. B.* 65. *R. Icon.* f. 1154—1156.—Smaller than the two preceding and with fewer flowers. Sep. green. Pet. green, quite glabrous. Lip deep brown, hairy, with paler or yellowish glabrous lines often resembling the Greek letter Π, entire at the end or notched with a central point.—*β. fucifera* (Hook.); lip usually undivided often with a gland in the notch, pet. scabrous. *O. fucifera* Sm. *E. B. S.* 2649.—Chalky places. *β.* Kent and Sussex. P. IV. V. *Spider Orchis.* E.

4. *O. muscifera* (Huds.); *lip oblong trifid* with a broad pale spot in the centre: *middle lobe elongated bifid*, anth. short obtuse, *pet. filiform.*—*E. B.* 64. *R. Icon.* 1146. *St.* 40. 15.—Slender, about a foot high. Sep. green. Lip brownish-purple, central spot subquadrate bluish. Pet. very narrow, purple.—Damp calcareous thickets and pastures. P. V. VI. *Fly Orchis.* E. I.

6. Herminium *R. Br.*

1. *H. Monorchis* (R. Br.); lip 3-lobed: central lobe longest, pet. with a lobe on each side.—*E. B.* 71.—Tubers very unequal and distant. L. usually 2. St. about 6 in. high. Sep. ovate, greenish. Spike dense, slender.—Calcareous soil in the south. P. VI. VII. *Musk Orchis.* E.

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Tribe II. *Limodoreæ.*

7. Goodyera *R. Br.*

1. *G. repens* (R. Br.); l. radical ovate stalked reticulated, sep. pet. and lip ovate lanceolate.—*E. B.* 289.—St. 6—8 in. high, bearing linear adpressed bracts. Root creeping. Whole upper part of the plant covered with minute stalked glands. L. reticulated with brown.—Fir forests of the north. P. VIII. S.

8. Spiranthes *Rich.*

1. *S. autumnalis* (Rich.); tubers ovate-oblong thick, radical l. ovate-oblong, stem l. like bracts, spike dense.—*E. B.* 541. *St.* 12. *Neottia* Sm.—St. 4—6 in. high. Spike spiral. Fl. greenish-white. Column and operculum acute with an obtuse ovate membranous process between them on each side.—Dry chalky and gravelly places. P. VIII. IX. *Fragrant Lady's Tresses.* E. I.

2. *S. æstivalis* (Rich.); tubers elongated cylindrical, radical l. oblong-lanceolate, stem l. narrowly lanceolate, spike lax.—*E. B. S.* 2817. *R. Icon.* f. 337.—Spike spiral. Fl. with a larger lip. Column and operculum acute with the intermediate processes lanceolate acute.—Bog between Lyndhurst and Christchurch in the New Forest. St. Owen's Pond, Jersey. P. VII. VIII. E.

3. *S.? gemmipara* (Lindl.); "l. lanceolate as tall as the stalk, spike 3-ranked twisted, bracts smooth." *Sm.*—*E. B. S.* 2786. (imperfect).—It seems probable that this very rare plant does not belong to this genus. Mr. Sowerby ascertained from the dry specimen that the rostellum is subulate but not bifid.—"In a salt marsh at Dunboy near Castleton Bearhaven, Cork. Aug. 3." *Mr. J. Drummond.* VIII. I.

9. Listera *R. Br.*

1. *L. ovata* (R. Br.); l. 2 opposite ovate, lip bifid, column with a crest which includes the anther.—*E. B.* 1548. *St.* 29. 14.—St. about a foot high. Spike elongated, very lax. Fl. small, greenish. L. large.—Woods and pastures. P. V. VI. *Twayblade.*

2. *L. cordata* (R. Br.); l. 2 opposite cordate, lip 4-lobed, column without a crest.—*E. B.* 358.—Height 3—5 in. St. slender. Fl. very small, in a lax spike, greenish. Lip with 2 basal and 2 terminal linear lobes. Turfy mountainous moors in the north. P. VI.—VIII.

10. Neottia *Linn.*

1. *N. Nidus-avis* (Rich.). The only species.—*E. B.* 48. *Listera* Hook., Sm.—Whole plant pale reddish-brown. Root formed of numerous short thick fleshy fibres from the extremities

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of which the young plants are produced. See *Leight. Fl. Shrop.* 434. St. a foot high, with sheathing brown scales. L. none. Spikes dense, cylindrical, many-flowered. Lip linear-oblong with 2 spreading lobes.—This is the original *Neottia* of Linnæus. *Act. Ups.* 1740. p. 33.—Shady woods. P.? VI. *Bird's-nest.*

11. EPIPACTIS *Rich.*

1. *E. latifolia* (All.); l. ovate clasping, lower bracts longer than the fl., *terminal division of the lip entire with a minute point.* —There are four very different plants included under this species, one or more of which is probably distinct; they may be characterized as follows:—

a. *E. latifolia*; l. broadly ovate longer than the internodes, upper l. ovate-oblong, lower bracts longer than the fl., *terminal division of the lip roundish-cordate obtuse with a small recurved point* shorter than the broadly ovate sep. and pet. "its keel not crenate above."—*E. B.* 269.—L. ovate, very broad, the very uppermost sometimes lanceolate-attenuated; lowermost leafless sheaths close. Lower bracts foliaceous lanceolate attenuated. Fl. green with the lip purple, sometimes all purple. Peduncle shorter than the downy germen. Lobe of the lip broader than long, crenate.—Mountainous woods. P. VII. VIII.

b. *E. media* (Fries); l. ovate-oblong the upper ones lanceolate acute, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute as long as the lanceolate sep. and pet.* its keel "crenate above."—*R. Icon. f.* 1141, 1142.—Narrower and more elongate in all its parts than *E. latifolia*, only the very lowest l. ovate, intermediate lanceolate, upper l. lanceolate attenuated and merging gradually into the linear-lanceolate bracts; sheaths funnelshaped. Fl. "green tinged with purple." Peduncle shorter than the downy germen. Lobe of the lip longer than broad crenate.—Woods. Shropshire. Matlock. Abberly, Wors. P. VIII. E.

c. *E. purpurata* (Sm.); l. ovate-lanceolate the upper ones narrower, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute shorter than the ovate-lanceolate sep. and pet.* its keel plicate-crenate above.—*E. B. S.* 2775. L. becoming gradually narrower as they ascend the st. and merging insensibly into the linear-lanceolate bracts. Fl. "yellow-green tinged with pink." St. and l. much tinged with purple. Peduncle shorter than the downy germen. Lobe of the lip longer than broad, entire, exactly like that of *E. media* but with a more attenuated point.—Woburn. Reigate. Crawley, Suss. P. VIII. E.

d. *E. ovalis*; l. ovate-oblong acute the upper ones lanceolate, 1 or 2 lowest bracts longer than the fl. but shorter than the fr.,

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terminal division of the lip transversely oval acute as long as the ovate acute sep. and pet. its keel plicate-crenate above.—Helleborine &c. No. 2. *Ray*. 383.?—L. small; sheaths funnelshaped (as far as I can judge from dry specimens). Bracts all much smaller than even the uppermost leaf. Fl. blackish-red, peduncle shorter than the downy germen. Lobe of the lower lip exactly transversely oval, crenate, with a small acute point and an elevated folded and crenate triangular keel above. St. 6—18 in. high.—Giggleswick and other places on the sides of mountains near Settle, Yorkshire. P. VII. E.

2. *E. palustris* (Sw.); l. lanceolate, bracts shorter than the somewhat drooping fl., terminal division of the lip roundish obtuse crenate as long as the perianth.—*E. B.* 270.—St. 12—18 in. high. Cal. purplish-green, pet. and lip white tinged with purple.—Moist places, not rare. P. VII. VIII.

12. Cephalanthera.

1. *C. grandiflora* (Bab.); l. ovate or ovate-lanceolate pointed, *bracts longer than the glabrous germen*, lip obtuse included.—*E. B.* 271. "S. grandiflora Linn." *Sm.* C. pallens *Koch*.—Fl. white, lip marked with several elevated longitudinal lines.—In dense woods, usually on a calcareous soil. P. VI. E. I.

2. *C. ensifolia* (Rich.); l. lanceolate pointed, *bracts much shorter than the glabrous germen*, lip obtuse included.—*E. B.* 494.—Fl. white, lip with several elevated white lines and a yellow spot in front.—Mountainous woods, rare. P. V. VI.

3. *C. rubra* (Rich.); l. lanceolate acute, bracts longer than the *downy germen*, lip acute as long as the pet.—*E. B.* 437. *Epipactis* Sm.—Fl. purple, lip white with a purple margin, marked with numerous wavy longitudinal lines.—Mountainous woods, very rare. "Bank sloping to the south on Hampton Common, Gloucestershire." *Sm.* P. VI. VII. E.

Tribe III. *Malaxideæ*.

13. Corallorhiza *Hall.*

1. *C. innata* (R. Br.); spur obsolete or wanting.—*E. B.* 1547.—Root of thick fleshy much branched fibres. Spike of few yellowish flowers. Sep. and pet. lanceolate, acute. Lip oblong, white, with a few purple spots.—Boggy woods, rare. P.VII.—S.

14. Malaxis *Sw.*

1. *M. paludosa* (Sw.); st. with 3—5 oval concave leaves, lip concave acute.—*E. B.* 72.—St. 1—4 in. high. Sep. ovate, spreading, 2 of them turning upwards. Lip above, erect, its

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base surrounding the column. L. fringed at the end with bulbous gemmæ. Forming a small bulbous hybernaculum.—This curious plant and the following rather grow upon the moss as epiphytes than amongst it.—Spongy bogs. P. VIII. IX.

15. Sturmia *Reich.*

1. *S. Loeselii* (R.); l. oblong-lanceolate, st. triangular, lip obovate longer than the petals.—*Malaxis* Sm. *E. B.* 47. *Liparis* Rich., Hook., Lindl.—St. 6—10 in. high. Fl. 6—12, in a lax spike, yellowish. Sep. lanceolate. Pet. linear. Hybernaculum large, ovate, inclosed in the whitish sheaths of the decayed leaves. An epiphyte?—*Liparis* is not admissible as a generic name in botany, having been previously used for a genus of insects, and at a still earlier date for one of fish. See *R. Icon.* iv. p. 39. *Steph. Syst. Cat. Ins.* ii. 50. *Cuv. Règ. Anim.* (ed. 1829) ii. 346. *Sturmia* has been employed several times in botany but always superseded. I follow Koch in adopting it here.—Spongy bogs in Norf., Suff., and Camb., very rare. P. VI.—E.

Tribe IV. *Cypripedieæ.*

16. Cypripedium *Linn.*

1. *C. Calceolus* (L.); st. leafy, middle lobe of the column nearly ovate obtuse deflexed, lip slightly compressed shorter than the calyx.—*E. B.* 1.—St. 12—18 in. high, downy, bearing 3 or 4 large ovate pointed leaves. Fl. usually solitary, sometimes 2, large; sep. 1—1½ in. long, dark brown; pet. dark brown, rather narrower than the sep.; lip 1 in. long, inflated, yellow, reticulated with darker veins.—Dense woods in the north, very rare. P. V. VI. *Lady's Slipper.* E.

Order LXXIX. IRIDEÆ.

Perianth tubular, 6-parted, petaloid, in 2 often unequal rows. Stam. 3, epigynous, opposite the outer segments of the perianth. Anth. bursting outwards. Ovary inferior, 3-celled. Style 1. Stigmas 3, dilated, often petaloid. Caps. 3-celled, 3-valved, valves bearing the dissepiments in the middle. Seeds numerous. Embryo cylindrical, inclosed in horny or fleshy albumen. Radicle pointing towards the hilum.

1. Iris. Perianth 6-cleft, superior, alternate segments reflexed. Stigma 3-parted, petaloid, covering the stamens.
2. Trichonema. Perianth regular, 6-cleft: segments spreading. Stigmas 3, bifid: lobes slender.
3. Crocus. Perianth regular, funnelshaped with a long tube:

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limb bellshaped. Stigma 3-fid or 3-parted: lobes widening upwards.

1. Iris *Linn.*

1. *I. Pseud-acorus* (L.); l. swordshaped, st. round, perianth beardless, its inner segments narrower and shorter than the stigmas.—*E. B.* 578.—Fl. yellow.—"*β. citrina*; fl. smaller, segments of the perianth narrower, the inner ones more acute, st. taller. Fl. paler." *Hook.*—Wet places. *β.* Ayrshire. P. VI. VII. *Yellow Flag.*

2. *I. fœtidissima* (L.); l. swordshaped, st. compressed, perianth beardless, its inner segments about as long as the stigmas.—*E. B.* 596.—Herb green, not glaucous, yielding an unpleasant smell when bruised. Fl. lead-coloured or bluish.—Woods and thickets in the west and south-west. P. VI. VII.

[*I. tuberosa* (L.); l. tetragonal, segments of the perianth acute, roots tuberous. Naturalized near Penzance and Cork.—*E. B. S.* 2818.]

2. Trichonema *Ker.*

1. *T. Columnæ* (R.); scape 1-flowered usually solitary slightly nodding, l. filiform compressed furrowed recurved, spath longer than the tube of the cor., style shorter than the stam., stigmas bifid.—*E. B.* 2549. *T. Bulbocodium* Sm.—A small bulbous plant not more than 4 in. high. Fl. pale purple or violet, yellow in the lower part within.—Sandy places. Dawlish Warren, Devon. Jersey and Guernsey. P. III. IV. E.

3. Crocus *Linn.*

* *Scapes enveloped in a tubular sheath.*

*1. *C. vernus* (Willd.); l. and fl. at the same time, spath simple, throat of the cor. fringed with hairs, stigma shortly 3-fid: lobes erect wedgeshaped jagged at the end, bulb clothed with slender anastomosing fibres.—*E. B.* 344.—Fl. violet-purple.—Near Nottingham; and Mendham, Suff.—A native of the mountains of central Europe, never descending into the plains of France or Germany. *Gay.*—P. III. E.

[2. *C. sativus* (L.); l. succeeding the fl., *spath double*, throat bearded, *stigma in* 3 *deep linear divisions drooping*, bulb clothed with slender anastomosing fibres.—*E. B.* 343.—Fl. purple. L. usually appearing just before the fl. fades.—Formerly cultivated near Saffron Walden, not even naturalized.—Found wild only near Ascoli in the Abruzzi, Italy. *Gay.*—P. IX. *Saffron.*]—E.

3. *C. nudiflorus* (Sm.); l. succeeding the fl., spath simple, scapes with a tubular sheath (?), *stigma in* 3 *deeply laciniated divisions erect*, bulb with a membranous coat.—*E. B.* 491.—L. appearing in December. Fl. purple. Stigmas only a little

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higher than the anthers.—*β. speciosus*; stigmas rising considerably above the anthers. *C. speciosus* Hook. *E. B. S.* 2752. not *Bieb.*—Meadows. Between Nottingham Castle and the Trent. *β.* Warwick; Warrington; Halifax.—A native of the west of Europe. *Gay.*—P. IX. E.

** *Scapes naked.*

[4. *C. biflorus* (Mill.); l. and fl. at the same time, spath double, *stigma* longer than the stam. erect deeply trifid: *divisions* truncate and *slightly notched* at the end, bulb with a membranous coat.—*E. B. S.* 2645. *C. præcox* Haw. *C. minimus* Hook.—Fl. pale lilac with yellow and purple stripes.—In the park (site of old garden) Barton, Suff. Has no claim to be considered as a native. P. III.] E.

[5. *C. aureus* (Sib.); l. and fl. at the same time (?), *spath simple, stigma shorter than the stam. shortly* 3-*fid*: segments truncate or slightly notched at the end, bulb coated with compact fibres.—*E. B. S.* 2646.—Fl. yellow.—With the preceding. P. III.] E.

Order LXXX. AMARYLLIDEÆ.

Stam. 6. Anth. bursting inwards. Otherwise like *IRIDEÆ*.

1. Narcissus. Perianth 6-parted, spreading, with equal segments, and a bellshaped crown within. Stam. alternately shorter, within the crown.

2. Leucojum. Perianth 6-parted, bellshaped, the segments all equal and thickened at their points. Stam. equal.

3. Galanthus. Perianth 6-parted, 3 external segments spreading, 3 interior shorter erect emarginate. Stam. equal, subulate.

1. Narcissus *Linn.*

*1. *N. biflorus* (Curt.); l. linear obtuse "acutely" (Sm.) "obtusely" (Koch) keeled, scape compressed 2-edged striated 2-flowered, crown very short concave crenate at the pale margin.—*E. B.* 276.—Pet. of a pale sulphur-colour, border of the short crown white.—Sandy fields in the south. P. IV. V. E. I.

*2. *N. poeticus* (L.); l. linear obtuse obtusely keeled, scape compressed 2-edged mostly 1-flowered, crown very short concave crenate at the red margin.—*E. B.* 275.—Fl. white with a yellow crown margined with red.—Heathy open fields on a sandy soil. Norf., Kent. P. V. E.

3. *N. pseudo-narcissus* (L.); l. linear obtuse not keeled, scape 2-edged 1-flowered, crown bellshaped crisped at the margin and crenate as long as the perianth.—*E. B.* 17.—Fl. large, yellow,

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pedicel within the scape short.—Woods and thickets. P. III. IV. *Daffodil.*

2. LEUCOJUM *Linn.*

1. *L. æstivum* (L.); spath many-flowered, style thickened upwards.—*E. B.* 621.—Bulbous. Height 2—2½ feet. Fl. white, with the tips greenish, drooping. L. broadly linear, keeled. Scape 2-edged. Spath usually as long as the flowers.—Wet meadows. P. V. *Summer Snowflake.* E.

3. GALANTHUS *Linn.*

1. *G. nivalis* (L.). The only species.—*E. B.* 19.—Fl. white with the inner segments greenish, drooping. Scape 1-flowered. L. 2, keeled, broadly linear, glaucous. Bulbous.—Thickets and damp fields. P. II. III. *Snowdrop.* E. S.

Order LXXXI. TAMEÆ.

Perianth superior, petaloid, 6-parted. Stam. 6, inserted into the base of the segments of the perianth. Anth. bursting inwards. Ovary inferior, 3-celled. Ovules 2 in each cell, erect. Style 1. Stigmas 3, reflexed. Fr. baccate, 3-celled, not bursting. Embryo minute, quite inclosed in the albumen.

1. TAMUS. Perianth bellshaped, limb 6-parted. Male with 6 stam. Fem. with the perianth adhering to the ovary and persistent. Stam. 6, very short, abortive.

1. TAMUS *Linn.*

1. *T. communis* (L.); undivided cordate acute.—*E. B.* 91.—Root large, thick, fleshy. St. very long, twining. Racemes axillary, on long stalks. Fl. yellowish-green, regular, small. Berry red. Plants dicœcious.—Hedges and thickets. P. V. VI. *Black Bryony.* E.

Order LXXXII. ASPARAGEÆ.

Perianth inferior, petaloid, 6-parted or 4—8-parted. Stam. 6 or 4—8, inserted into the receptacle or on the perianth. Anth. bursting inwards. Ovary superior, 3-celled. Ovules 1 or many in each cell. Styles 1—3. Fr. succulent, not bursting.—In this and the two following Orders I follow Koch, who appears to have paid great attention to them. He states that the testa varies amongst the species of the same genus.

1. ASPARAGUS. Perianth 6-parted, bellshaped, tubular below. Stam. 6. Ovary 3-celled, cells with 2 ovules. *Style* 1. *Stigmas* 3, *reflexed.*—Fl. by abortion dicœcious.

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2. PARIS. Perianth horizontally patent, 8-parted to the base, 4 inner or cor. narrower than the others. Stam. 8. Anth. fixed to the middle of a subulate filament. *Styles* 4. Berry 4-celled, cells with 4—8 seeds.

3. CONVALLARIA. *Perianth* bellshaped or tubular, 6-*parted or* 6-*toothed.* Ovary 3-celled, cells with 2 ovules. *Stigma obtuse,* trigonous. Berry with 1-seeded cells.

4. MAIANTHEMUM. *Perianth* 4-*parted,* segments horizontally patent or reflexed. Stam. 4. Style 1. Stigma obtuse. Berry 2-celled, cells 1-seeded.

5. RUSCUS. Perianth 6-parted to the base. Male with the filaments connected into a tube on the top of which the 3 anth. are placed. Fem. the same but the anthers barren. Style 1. Stigma capitate. Berry 3-celled, cells 2-seeded.

1. ASPARAGUS *Linn.*

1. *A. officinalis* (L.); st. herbaceous mostly erect without spines branched, l. fasciculated terete flexible setaceous, "limb of the perianth twice as long as the tube."—*E. B.* 339.—Root creeping. Stems numerous, scaly, erect, or rarely procumbent, rarely more than a foot high (in cultivation 3 feet).—Wild state of the garden Asparagus. Sea-coast, rare. Kynance Cove, Cornwall. Callar Point, Pemb. Gosford Links, Scotl. P. VIII.

2. PARIS *Linn.*

1. *P. quadrifolia* (L.); l. usually 4 in a whorl.—*E. B.* 7.—St. about a foot high, springing from the extremity of a long rhizoma, usually with 4, occasionally from 3—6 l. at its summit. Fl. solitary terminal. Sep. lanceolate. Pet. subulate. No root l. See *Loud. Mag. Nat. Hist.* v. 429.—Damp woods. P. V. *Herb Paris.*

3. CONVALLARIA *Linn.*

* *Flowers cylindrical-tubular, white with green tips.*

1. *C. verticillata* (L.); *l. linear-lanceolate whorled,* st. erect angular.—*E. B.* 128.—St. 2 feet high. L. 3—5 in a whorl. Berries red.—Woods. Den of Rechip near Dunkeld. P. VI.—S.

2. *C. Polygonatum* (L.); l. ovate-oblong half clasping glabrous alternate, *st. angular,* peduncles 1—2-flowered, *filaments glabrous.*—*E. B.* 280.—Height 1—1½ foot. Berry bluish.—Woods, rare. P. V. *Solomon's Seal.* E.

3. *C. multiflora* (L.); l. ovate-oblong half clasping glabrous alternate, *st. round,* peduncles 1- or many-flowered, *filaments downy.*—*E. B.* 279.—Height 2 feet. Berry bluish.—Woods. P. V. *Solomon's Seal.* E. S.

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** *Flowers bellshaped, wholly white.*

4. *C. majalis* (L.) ; scape semicylindrical naked, fl. racemose nodding, l. 2 ovate-lanceolate radical.—*E. B.* 1035. *St.* 14. 10. —About a foot high. Fl. pure white globose-bellshaped, fragrant.—Woods and thickets. P. V. *Lily of the Valley.*—E. S.

4. MAIANTHEMUM *Wiggers.*

1. *M. bifolium* (DC.) ; st. with 2 alternate stalked triangular-cordate leaves.—*Ger. Herb.* p. 409.—*Convallaria* L., *St.* 13. 6. —St. 6—8 in. high. Root filiform. L. very deeply cordate. Raceme terminal, resembling a spike. Fl. small, segments reflexed. "Berry yellow with brown spots."—Woods. Howick and Kenwood, Northumb. *Mr. R. Embleton.* "It groweth in Lancashire in Dingley Wood, 6 miles from Preston Auldirnesse, and in Harwood near Blackeburne likewise." *Gerard.* P. V.—E.

5. RUSCUS *Linn.*

1. *R. aculeatus* (L.) ; l. ovate attenuated very acute rigid bearing the fl. upon the middle of their upper surface, fl. solitary rarely 2 together subtended by a flat subulate scarious 1-nerved bract.—*E. B.* 560. *St.* 41. 16.—Foliage evergreen. Fl. very minute. The apparent l. are flattened shoots.—Bushy places and woods. Sh. III. IV. *Butcher's Broom.* E. S.

Order LXXXIII. LILIACEÆ.

Perianth inferior, petaloid, 6-parted. Stam. 6, inserted into the receptacle or on the perianth. Anth. bursting inwards. Ovary superior, 3-celled. Ovules many in each cell. Style 1. Stigmas 3 or 1. Fr. dry, bursting with 3 valves bearing the dissepiment on their middle.—Roots bulbous.

Tribe I. *TULIPEÆ.* L. of the perianth distinct. Cells of the caps. many-seeded. Seeds flat (in *Lloydia* angular), placed closely one above another. Pale or fuscous, not crustaceous.

1. TULIPA. Perianth of 6 leaves without nectaries. Style 0. Stigma 3-lobed. Seeds flat.

2. FRITILLARIA. Perianth of 6 leaves with a nectariferous depression at the base of each. Style 3-fid at the apex. Seeds flat.

[3. LILIUM. Perianth of 6 leaves, spreading or reflexed, with a longitudinal nectariferous furrow at the base of each. Style undivided. Stigma capitate. Seeds flat.]

4. LLOYDIA. Perianth of 6 patent leaves, with a transverse nectariferous fold near the base of each. Stam. inserted at

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the base of the perianth. Anth. erect, attached by their bases. Style filiform. Stigma trigonous. Seeds "arcuate above, flat beneath, in 2 rows in each cell."

Tr. II. *ASPHODELEÆ*. L. of the perianth distinct. Cells of the caps. few-seeded. Seeds various in form, usually with a black crustaceous testa.

5. ORNITHOGALUM. Perianth of 6 patent leaves. Stam. inserted upon the receptacle and adhering only slightly to the perianth. Anth. incumbent, attached by their backs.—Fl. white or yellow, never blue.

6. GAGEA. Perianth of 6 patent leaves. Stam. adhering to the base of the perianth. Anth. erect, attached by their bases.—Fl. corymbose or umbellate.

7. SCILLA. Perianth of 6 patent leaves. Stam. inserted on the base of the perianth. Anth. incumbent.—Fl. racemed. —Fl. never white or yellow.

8. ALLIUM. Perianth of 6 leaves, rather spreading. Stam. inserted at the base of the perianth. Anth. incumbent.—Fl. umbellate. Spatha of 1 or 2 leaves.

Tr. III. *HEMEROCALLIDEÆ*. L. of the perianth combined below. Cells of the caps. few-seeded. Seeds various in form, testa (in our plants) black.

9. AGRAPHIS. Perianth tubular-bellshaped of 6 connivent leaves with reflexed points, combined below. Stam. inserted below the middle of the perianth, filaments decurrent.

10. MUSCARI. Perianth globose or subcylindrical, narrowed at the mouth, 6-toothed. Stam. inserted at about the middle of the tube, filaments not decurrent.

Tribe I. *Tulipeæ*.

1. TULIPA *Linn.*

† *T. sylvestris* (L.); st. 1-flowered glabrous, fl. at first drooping, inner segments of perianth and base of the stamens bearded. —*E. B.* 63. *St.* 29. 11.—Fl. yellow, rarely produced in a wild state.—Chalk-pits in the eastern counties. Several places in Scotland. P. IV. *Wild Tulip.* E. S.

2. FRITILLARIA *Linn.*

1. *F. Meleagris* (L.); st. single-flowered leafy, l. all alternate linear-lanceolate.—*E. B.* 622. *St.* 18. 4.—About a foot high. Fl. flesh-coloured with numerous dark spots, sometimes white. —Meadows and pastures in the east and south. P. V. *Fritillary.* E.

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3. LILIUM *Linn.*

[*1. *L. Martagon* (L.); l. whorled elliptic-lanceolate, st. pubescent-scabrous, fl. nodding, perianth reflexed.—*E. B. S.* 2799. —Height 1—1½ foot. Fl. violet-flesh-coloured with dark purple spots.—Naturalized in copses in many places. P. VI. VII. *Turk's-cap Lily.*] E.

4. LLOYDIA *Salisb.*

1. *L. serotina* (R.). The only species.—*E. B.* 793. *St.* 28. 2. —*Anthericum* Sm.—Height 5 or 6 in. L. semicylindrical, filiform. St. and l. springing separately from the root. St. bearing several short leaves dilated and sheathing at their base. Fl. white with reddish lines internally.—Higher parts of the Welsh mountains, very rare. P. VI. E.

Tribe II. *Asphodeleæ.*

5. ORNITHOGALUM *Linn.*

*1. *O. umbellatum* (L.); fl. corymbose, peduncles longer than the linear-lanceolate bracts, filaments lanceolate simple, l. linear glabrous.—*E. B.* 130.—L. linear and longer than the stem, or filiform and shorter than it. Height 8—12 in. Fl. white with a broad green longitudinal band externally.—Meadows and pastures. P. V. *Common Star of Bethlehem.* E. S.

2. *O. pyrenaicum* (L.); fl. in an elongated raceme, peduncles at first spreading afterwards erect, bracts lanceolate-acuminate, filaments dilated below with an elongated point, l. fugacious linear grooved.—*E. B.* 499.—St. leafless, 2—3 feet high. Raceme very long. Fl. greenish-white, segments of the perianth variable in breadth. L. withering before the stalk appears, rarely contemporaneous. This is more correctly *O. narbonense* (L.), but the plants do not appear distinguishable.—Woods. Extremely common near Bath. Sussex. Bedfordshire. P. VI. *Spiked Star of Bethlehem.* E.

*3. *O. nutans* (L.); fl. few in a lax nodding raceme, peduncles shorter than the bracts, filaments flat membranous trifid: the lateral points acute middle one very short bearing the anther, l. linear-lanceolate.—*E. B.* 1997. *Albucea* R.—Height 9—12 in. Fl. large, white, greenish externally. — Fields and orchards, rare. P. IV. V. E.

6. GAGEA *Salisb.*

1. *G. lutea* (Ker.); radical l. usually solitary linear-lanceolate flat, bracts 2 opposite, peduncles umbellate simple glabrous, segments of the perianth oblong obtuse, bulb ovate solitary.—*E. B.* 21. *Ornithogalum* L.—St. about 6 in. high, shorter than

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the leaves. Bracts lanceolate, 1 of them often longer than the yellow flowers.—Woods and thickets, rare. P. III. IV. E. S.

7. Scilla *Linn.*

1. *S. autumnalis* (L.); l. linear numerous, raceme slightly corymbose, peduncles ascending, *bracts* 0.—*E. B.* 78.—Height 4—6 in. Fl. purplish-blue with a green line down the back, in perfection before the l. appear.—Dry pastures in the south and west. P. VIII. *Autumnal Squill.* E.

2. *S. verna* (Huds.); l. linear channeled hooded at the end numerous, raceme few-flowered corymbose, *bracts lanceolate* as long as the peduncles.—*E. B.* 23.—Height 4—5 in. Fl. blue. L. as long or longer than the stalk.—Western and northern coasts. P. IV. V. *Vernal Squill.*

[3. *S. bifolia* (L.); l. linear-lanceolate usually only 2, raceme lax slightly corymbose, peduncles erect, bracts 0.—*E. B.* 24.—Said to grow in the west of England but no station recorded. P. IV.] E.

8. Allium *Linn.*

* *Root bulbous. Stam. alternately broader and* 3*-pointed, the intermediate point bearing an anther, the others filiform and barren.* Porrum *Tourn.*

*1. *A. Ampeloprasum* (L.); st. leafy below, l. flat, spath elongated, umbel globose with or without bulbs, stam. exserted, 3 inner ones 3-pointed: *anther-bearing point as long as the broad parallel-sided common filament* and ½ of the length of the barren points, bulb compound.—*E. B.* 1656.—Bulb forming 2—4 large offsets within its coats. St. 2—3 feet high. L. long, linear. Heads large, globose many-flowered. Spath with a flat point 1—2 in. long. Fl. pale purple with the keel of the outer segments greenish and rough. Common filament of the compound stam. with straight parallel sides. Germen suddenly narrowed on the back of each segment, the constriction continued to the base. Head-bulbs, when present, small, the size of peas.—Cliffs on the Steep Holms Island in the Severn (remains of former cultivation, *Borr.*). Indigenous on cliffs in Guernsey. P. VIII.—E.

2. *A. Halleri*; st. leafy below, l. flat, sheaths cylindrical, spath elongated, umbel globose bearing bulbs, stam. exserted, 3 inner ones 3-pointed: *the anther-bearing point rather shorter than the oval common filament* and a quarter of the length of the barren points, bulb simple (?).—*Allium &c.* Hall. All. 16. No. 2. *A. Scorodoprasum* β. Linn.—St. 3—4 feet high. L. long, linear, with scabrous margins, fading before the flowers open. Heads smaller than those of the preceding, with rather numerous large bulbs. Spath with a flat point 1—2 in. long. Fl. purple, rather few; intermixed with them are a few long (2—3 in.) thick

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usually branched flowerstalks bearing from 2—4 flowers; the outer segments with a green keel, ovate-oblong with callous points, the edges and back rough with minute pellucid points; inner segments slightly emarginate and without points. Common filament of the compound stam. with curved sides, truly oval. Head-bulbs often as large as hazel-nuts.—Hooker (*Br. Fl.* ed. 5. xxxviii.) refers this plant to *A. carinatum* which has all its stam. simple.—Roundstone, and S. Isles of Arran, Galway. *Mr. W. MacCalla.* P. VIII. E.? L.

3. *A. Scorodoprasum* (L.); st. leafy below, l. flat, *sheaths keeled, spath* short and broad *with a short point,* umbel globose bearing numerous bulbs, *stam. included* or equalling the perianth, 3 inner ones 3-pointed: *anther-bearing point ⅓ of the length of the linear common filament* and of the barren points.—*E. B.* 1358.? *A. arenarium* L.!, Sm.—Root with numerous small purple offsets. St. 2—3 feet high. L. with scabrous margins, not faded at the time of flowering. Heads small. Spath with a very short point. Fl. few, purple; the segments all acute, the outer with the edges and keel rough. Common filament of the compound stam. with straight parallel sides. Head-bulbs very small, deep purple.—*A. Scorodoprasum* (Linn. Herb.) appears to be a bad specimen of this plant, which is considered, as I believe correctly, to be that of Linnæus by the Swedish and German botanists. *A. arenarium* (L. Herb.) is the same plant. *A. Scorodoprasum* (Sm. Herb.), so named by Davall, is my *A. Halleri* and is the *Scorodoprasum* of the old botanists.—Sandy woods and fields in the north. P. VI. VII. E. S.?

4. *A. vineale* (L.); st. leafy below, *l. terete hollow* slightly channeled above, spath 1-valved short with a slender elongated point, umbel globose with numerous bulbs, stam. exserted, 3 inner ones 3-pointed: *anther-bearing point equalling the common filament and half as long as the barren points.*—*E. B.* 1974. *R. Icon.* t. 404. A. arenarium *Fries.*—St. 2 feet high. L. faded at the time of flowering. Heads with few pale rose-coloured fl. with green keels and long stalks. Head-bulbs small oval acute greenish.—β. *compactum*; umbel without fl., head-bulbs terminating in a leaflike point. *A. compactum* "Thuil."—Waste ground and dry fields. P. VII. *Crow Garlick.*

5. *A. sphærocephalum* (L.); st. leafy below, l. subcylindrical channeled above smooth hollow, spath 2-valved short, *umbel* globose *without bulbs,* stam. twice as long as the perianth, 3 inner ones 3-pointed: *anther-bearing* point as long as the common filament *longer than the barren points, bulb* accompanied by stalked offsets.—*E. B. S.* 2813.—St. 1—2 feet high. L. usually faded before the time of flowering. Heads with numerous rose-coloured or purple fl. with the keels darker and rough. *A. descendens* (L.) scarcely differs.—Sands in Jersey. P. VII. O.

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** *Root bulbous. Stam. all simple, not 3-pointed, connected at the base. Spath 2-valved, 1 valve with a long point.*

6. *A. oleraceum* (L.); st. leafy below, "l. semicylindrical tubular rough channeled above ribbed beneath," spath with 1 of the points very long, umbel with bulbs, stam. simple equalling the perianth.—*E. B.* 488.—Height 1—2 feet. L. (of the Bristol plant) thick, fleshy, solid, nearly flat but slightly and broadly channeled above, with 4 ribs beneath.—Borders of fields. P. VII. VIII. E. S.

7. *A. carinatum* (L.?); st. leafy below, l. flat ribbed concave above, spath with one of the points very long, umbel bearing bulbs, stam. simple shorter than the perianth.—*E. B.* 1658.—A. oleraceum β. complanatum *Fries.*—Height 2—3 feet. L. (of the Winander Mere plant) of equal thickness throughout, the margins curved upwards so as to make them appear to be channeled, with numerous ribs on both sides.—Mountains in the north, rare. P. VIII. E. S.

[*A. flexum* (W. and K.), which is distinguished from the two preceding by its flat not keeled leaves and protruded stamens, is said to have "come from the north of England" to Mr. E. Forster's garden where it now grows.]

*** *Root bulbous. Stam. all simple and distinct. Spath 2-valved, short.*

8. *A. Schœnoprasum* (L.); st. naked or with one leaf, l. terete or slightly flattened above hollow subulate, spath ovate pointed about as long as the flowers, umbel many-flowered globose without bulbs, stam. simple about half the length of the lanceolate segments of the perianth.—*E. B.* 2441.—St. about 6 in. high. L. straight with even striæ. Pet. lanceolate. Barren bulbs with 2 leaves. Style "much shorter than the young germen." Fl. pink. Bulbs forming dense tufts.—β. *arcuatum*; l. curved and bent downwards with crenulated striæ, pet. lanceolate-attenuate, barren bulbs single-leaved, style longer than the young germen. *A. sibiricum* Willd.? Height 6 in. to 2 feet. Heads large. This plant has retained its characters for several years in Mr. Borrer's garden and is probably a distinct species.—Meadows and pastures in mountainous situations. β. Rocks and cliffs near the sea in Cornwall. Tintagel. *Rev. R. T. Bree.* Between Kynance Cove and Mullion. P. VI. VII. *Chives.* E. S.

**** *Root bulbous. Stam. all simple. Leaves flat.*

9. *A. ursinum* (L.); st. naked triangular, l. all radical stalked ovate-lanceolate, spath 2-valved ovate, umbel level-topped lax without bulbs, stam. simple.—*E. B.* 122.—Bulb slender, oblong. L. few, broad, smooth, bright green. Stalk 1, as tall or taller than the leaves. Fl. white. Herbage smelling strongly of gar-

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lick when bruised.—Damp woods and hedges. P. V. VI. ***Ramsons.***

[*A. ambiguum* (Sm.) which has broadly linear attenuated leaves, umbels few-flowered and with a few bulbs, spath 3—4-valved, and stam. about half the length of the perianth, has been found near Rochester and on Eye Castle Hill, Suff., but appears to have no just claims to be considered as a native. *E. B. S.* 2803.]

Tribe III. *Hemerocallideæ.*

9. AGRAPHIS *Link.*

1. *A. nutans* (Link); l. linear, raceme nodding, fl. bellshaped cylindrical, apex of the sep. revolute, bracts 2.—*E. B.* 377. *R. Icon.* f. 1125. Scilla *Sm.* Hyacinthus *Hook.*—Scape about a foot high. Fl. blue, rarely white. Stam. united to the perianth half way up. L. shorter than the scape. Not agreeing well with either of the genera to which it is usually referred, and therefore it is far better to separate it from them.—Woods and thickets. P. V. ***English Blue-bell.***

10. MUSCARI *Tourn.*

†1. *M. racemosum* (Mill.); fl. ovate nodding crowded upper ones nearly sessile abortive, l. linear flaccid recurved.—*E. B.* 1931.—Scape about a foot high. Fl. dark blue.—Sandy fields. Very plentiful near Pakenham, Suffolk. P. V. ***Grape-Hyacinth.*** E. S.

Order LXXXIV. COLCHICACEÆ.

Perianth inferior, 6—7-parted. Stam. 6, inserted into the receptacle or on the perianth. Anth. bursting outwards. Ovaries superior, 1 of 3 cells, or 3 of 1 cell more or less connected. Ovules numerous. Styles 1—3. Fr. bursting inwards of 3 separate 1-celled follicles, or more or less combined into a 3-celled septicidal capsule.

1. COLCHICUM. Perianth funnelshaped with a very long tube; limb 6-parted, petaloid. Caps. 3, connected throughout, 1-celled, opening at the inner edge, many-seeded.

2. TOFIELDIA. Perianth 6-leaved. Anth. bursting longitudinally. Caps. 3, connected to above the middle, 1-celled, opening at the inner edge, many-seeded.

1. COLCHICUM *Linn.*

1. *C. autumnale* (L.); l. flat lanceolate erect.—*E. B.* 133.—Root large, tuberous. L. a foot long and often an inch broad,

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dark green, smooth. Fl. several, bright purple, rising from the root with very long tubes, the germen remaining under ground and appearing in the spring with the leaves.—Meadows. P. IX. X. *Meadow Saffron.*

2. TOFIELDIA *Huds.*

1. *T. palustris* (Huds.); pedicels naked at the top but with a 3-lobed bract at the base.—*E. B.* 536 (not good). *T. borealis* Wahl., Koch, Gaud., Reich., *Hoppe in St.* 78. 8.—St. 4—8 in. high, l. swordshaped, about 2 in. long, in 2-ranked radical tufts. Fl. in a short dense spike, at first sessile, afterwards slightly stalked, with *a bract at the base of the stalk but none under the perianth.* This is the true plant of Hudson, and therefore his name must be retained.—Mountain bogs. P. VII.

Order LXXXV. RESTIACEÆ.

Perianth more or less glumaceous, 2—6-parted, rarely 0. Stam. "perigynous," 1—6, when half as numerous as the segments of the perianth they are opposite to the inner divisions. Anth. usually 1-celled. Ovary superior with 1 or more cells. Ovules solitary, pendulous. Fr. capsular or nucumentaceous. Embryo lenticular, on the outside of farinaceous albumen, at the extremity remote from the hilum.

1. ERIOCAULON. Fl. in a compact scaly head. Barren fl. in the centre. Perianth 4—6-fid, the inner segments united nearly to the summit. Stam. 4—6. Fertile fl. in the circumference. Perigone deeply 4-parted. Stigmas 2—3. Caps. 2—3-lobed, 2—3-celled: cells 1-seeded.

1. ERIOCAULON *Linn.*

1. *E. septangulare* (With.); "scapes striated longer than cellular compressed subulate glabrous l., fl. 4-cleft hairy at the extremities as well as the scales, stam. 4, caps. 2-celled." *Hook.* —*E. B.* 733. *Fl. Lond.* n. s. t. 52.—St. varying in height according to the depth of the water, usually with 6 or 8 rarely 7 or 10 angles each corresponding with a bundle of vessels surrounding a central bundle. Fertile fl. 4-parted nearly to the base, 2 lateral divisions keeled compressed obtuse fringed black. Each fl. with a broad blunt black scale in front shorter and broader than the flower. Roots of numerous white articulated fibres.—Peaty lakes and pools in Skye and a few of the neighbouring islands; and in Cunnamara. P. VIII. S. I.

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Order LXXXVI. JUNCACEÆ.

Perianth more or less glumaceous, 6-parted. Stam. 6, inserted into the base of the segments, or 3 opposite to the outer series. Anth. 2-celled. Ovary 1—3-celled, superior. Ovules 1, 3, or many in each cell. Style 1, stigmas usually 3. Fr. capsular, 3-valved, loculicidal, sometimes not bursting. Embryo subcylindrical, within firm albumen, near the hilum.

1. NARTHECIUM. *Perianth* partly *coloured*, of 6 linear-lanceolate persistent leaves. *Filaments woolly*. Style undivided. Stigma simple obtuse. Caps. pyramidal, 3-celled, 3-valved. *Placenta extending only a short distance up the inner edge of the dissepiment. Seeds with a long filiform appendage at each end.*—Referred to *Liliaceæ* by Koch.

2. JUNCUS. *Perianth glumaceous*, 6-leaved. *Filaments glabrous*. Style undivided. Stigmas 3, filiform. *Caps.* 3-*celled*, 3-valved. Seeds attached to the inner edge of the dissepiments.

3. LUZULA. Caps. 1-celled, 3-valved, without dessepiments. Seeds 3, at the base of the cell. Otherwise like *Juncus*.

1. NARTHECIUM *Huds.*

1. *N. ossifragum* (Huds.); l. linear-swordshaped, pedicels with 1 bract at the base and another above their middle, perianth longer than the stam. and considerably shorter than the caps.—*E. B.* 535. *St.* 78. 3.—St. 6—8 in. high, slightly leafy, decumbent and rooting below. L. mostly in radical 2-ranked tufts, half the height of the stem. Cluster continuous. Fl. bright yellow. Occasionally a proliferous spike occurs.—The seeds at once separate this genus from its allies.—Turfy bogs. P. VI. VII. *Bog Asphodel.*

2. JUNCUS *Linn.*

* *Barren and fertile stems subulate with leafy sheaths below L. long, resembling the stems, or reduced to a mucro. Seeds with a loose testa forming a sack at each end* (*appendaged*).

1. *J. maritimus* (Sm.); st. naked, l. radical terete sharp-pointed, panicle very compound erect, *segments of perianth* equal lanceolate acute *as long as the elliptical mucronate capsule.*—*E. B.* 1725.—St. erect, 1—2 feet high. Panicle elongated, lax.—Salt marshes, but not very common. P. VII. VIII.

2. *J. acutus* (L.); st. naked, l. radical terete sharp-pointed, panicle very compound mostly compact, *segments of perianth*

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equal *half the length of the roundish ovate caps.* : 3 inner ones obtuse with a membranous border.—*E. B.* 1614.—St. erect, rigid, with a very sharp rigid point, 3—6 feet high. Panicle dense, corymbose. Fr. twice as large as that of the preceding. —Sands on the sea-coast, rare. P. VII. VIII. E. I.

** *Barren and fertile stems subulate with sheaths at their bases which are either leafless or with rudimentary leaves. Seeds with a close testa (not appendaged).*

3. *J. effusus* (L.) ; *st.* naked *faintly striated soft* ; panicle conglomerate or diffuse, *caps.* obovate retuse *not apiculate*. *E. B.* 836. *Leers Herb.* t. xiii. 2.—Height 1—2 feet. L. altogether wanting or reduced to minute slender filaments at the top of sheathing scales. Panicle diffuse very much branched.—*β. compactus* (Leight.) ; panicle more or less dense globose.—Marshy ground. *β.* Near Bath. P. VII. *Soft Rush.*

4. *J. conglomeratus* (L.) ; *st.* naked *faintly striated soft*, panicle conglomerate or diffuse, *caps.* obovate retuse *apiculate*.—*E. B.* 835. *Leers* t. xiii. 1.—Height 1—2 feet. L. none or reduced to minute slender filaments at the top of the sheathing scales. Panicle globose, dense.—*β. effusus* (Leight.) ; panicle more or less effuse.—Marshy ground. P. VII. *Common Rush.*

5. *J. glaucus* (Sibth.) ; *st.* naked *deeply striated* rigid, *pith interrupted*, panicle loose much branched erect, segments of perianth lanceolate-subulate rather longer than the *elliptic-oblong mucronate capsule*.—*E. B.* 665. J. inflexus *Leers* t. xiii. 3.—Distinguished by its ascending diffuse panicle, longer black fr., rigid attenuated glaucous st., and dark sheaths. L. none or reduced to minute slender filaments at the top of the sheathing purple scales.—Wet places. P. VII. *Hard Rush.*

6. *J. diffusus* (Hoppe) ; *st.* naked *finely striated* rigid, *pith continuous*, panicle loose much branched erect, segments of perianth lanceolate-subulate longer than the *obovate-obtuse mucronate capsule*.—*Hoppe in St.* 77. 10.—Very similar to the preceding but quite distinct. St. green.—In wet places, rare? Kincardine. I have not seen British specimens, but introduce it on the authority of Mr. W. Sonder of Hamburgh, who possesses Scottish specimens. P. VII. VIII. S.

7. *J. balticus* (Willd.) ; *st.* naked *very faintly striated* rigid, pith continuous, panicle erect slightly branched, segments of perianth ovate-lanceolate acute, *caps. elliptical* scarcely trigonous obtuse mucronate.—*E. B. S.* 2621.—Root creeping widely. L. none or reduced to very minute points at the top of the sheathing scales. Distinguished from *J. arcticus* by its rounded not trigonous capsules, and from *J. glaucus* by its extensively creeping

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root, scarcely striated st. and continuous pith.—Sandy and wet sea-coasts. P. VII. S.

8. *J. filiformis* (L.); st. naked filiform faintly striated, *panicle simple of few* (about 7) *fl. placed near the middle of the st.*, segments of perianth lanceolate acute, caps. roundish-obovate obtuse mucronate.—*E. B.* 1175. *St.* 36. 10.—L. none or as in the preceding plants. Distinguished by its remarkably slender st. of about a foot in height, upon which the small panicles are placed very low, and the roundish capsules. Stony margins of lakes in the north. P. VII. E. S.

*** *No barren stems. Flowers capitate or solitary and terminal. Seeds appendaged.*

9. *J. castaneus* (Sm.); *st. bearing* 2—3 *l.*, l. channeled, heads terminal solitary or 2 or 3, segments of perianth elliptic-lanceolate acute half as long as the ovate-oblong pointed trigonal capsules, *root creeping.*—*E. B.* 900.—St. 8—12 in. high. Root with lax runners. Caps. chocolate-coloured.—Micaceous mountain bogs at a great elevation, rare. P. VII. VIII. E. ? S.

10. *J. triglumis* (L.); *st. naked round*, l. radical subulate channeled, head solitary terminal of 1—3 erect fl. usually as long as the membranous bract, segments of the perianth elliptical-oblong obtuse rather shorter than the *ovate-oblong pointed* caps., *root cæspitose.*—*E. B.* 899. *St.* 28. 3.—Root scarcely creeping. St. several from one root, 3—6 in. high, perfectly round. Caps. chestnut-coloured, with a tapering rather acute extremity.—Boggy places on mountains. P. VII. VIII. E. S.

11. *J. biglumis* (L.); *st. naked channeled* on one side, l. radical subulate compressed (not channeled), head solitary terminal of 2 unilateral fl. one of which is stalked usually shorter than the leafy bract, segments of perianth oblong-obtuse rather shorter than the *turbinate retuse caps.*, root fibrous.—*E. B.* 898.—St. 2—4 in. high, seldom more than 1 from each root. Caps. light brown with purple margins and a retuse extremity.—Boggy spots on mountains, rare. P. VIII. S.

12. *J. trifidus* (L.); *st. with* 1 *leaf* on its upper part, the basal sheaths awned: upper one with a short l., *head* terminal of 1—3 fl. *with two setaceous leaflike bracts*, segments of perianth acute shorter than the rounded elliptical beaked caps., root creeping.—*E. B.* 1482.—St. crowded, erect, slender, 2—6 in. high. Occasionally the stem-l. is wanting and sometimes it has a second head in its axil. Remarkable for its long setaceous bracts. Perianth and caps. dark brown.—Damp rocky places on mountains. P. VII. VIII. S.

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******** *No barren stems. Flowers in a terminal head or 2 heads one above the other, or in panicled heads. Seeds not appendaged.*

13. *J. capitatus* (Weigel); *st. naked* erect simple, l. radical filiform, head terminal mostly solitary shorter than the setaceous bract, *segments of the perianth* ovate-lanceolate *acuminate-aristate twice as long as the truncate apiculate caps.*, stam. 3.—*E. B. S.* 2644. *St.* 13. 7.—Plant 1—4 in. high. L. half as long as the stems. Heads large, of 3—6 sessile flowers.—Sandy ground in Guernsey and Jersey. A. VI. VII. O.

14. *J. obtusiflorus* (Ehrh.); st. 2-leaved and as well as the internally jointed *l. terete*, panicle repeatedly compound spreading divaricated, *segments of perianth* equal *obtuse* as long as the ovate acute trigonous capsule.—*E. B.* 2144. *St.* 77. 12.—Erect, 2—3 feet high. St. and l. not compressed.—Marshes, rather rare. P. VII.—IX.

15. *J. acutiflorus* (Ehrh.); st. 3—4-leaved and as well as the internally jointed *l. subcompressed*, panicle compound pyramidal, *segments of perianth acuminate-aristate inner ones longest* all rather shorter than the narrow-ovate acuminate rostrate triquetrous capsule.—*E. B.* 238. J. sylvaticus *Hoppe in St.* 78. 1.—St. erect, 1½—2 feet high. L. slightly compressed. Clusters 5—6-flowered. Caps. pale brown.—Boggy places. P. VI.—VIII.

[*J. fusco-ater* (Schreb.), *J. alpinus* (Vill.), differs from the preceding and following species by the acute dorsal angle of the sheaths of its leaves and the blunt segments of its perianth which are mucronate below their summit. It is common throughout Europe and no doubt will be found in Britain.]

16. *J. lamprocarpus* (Ehrh.); *st.* 3—6-leaved *and* as well as the internally jointed *l. compressed*, panicle repeatedly compound erect forked; *segments of perianth equal acute the inner ones obtuse* all shorter than the ovate attenuated mucronate triquetrous capsule.—*E. B.* 2143.—St. erect, 12—18 in. high. L. compressed, with numerous internal divisions. Clusters 4—8-flowered. Caps. dark brown.—Boggy places. P. VII. VIII.

17. *J. nigritellus* (Don); *st.* 3—4-leaved *and* together with the internally jointed *l. nearly cylindrical*, panicle slightly compound erect, segments of perianth nearly equal (3 inner rather longer and broader) acute shorter than the *linear-oblong* trigonous *rostrate capsule.*—*E. B. S.* 2643. not *Koch, Kunth.*—St. erect, 6—12 in. high. L. scarcely at all compressed. Clusters of more numerous fl. than in the preceding. Caps. brown, at length black and glossy, more abruptly pointed than in *J. lamprocarpus.*—Boggy places in the north. P. VII. VIII.

18. *J. supinus* (Moench); st. filiform, l. setaceous slightly

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channeled and faintly jointed internally, panicle nearly simple elongated with few distant clusters, segments of the perianth equal acute (3 inner rather obtuse) nearly as long as the *elliptical very obtuse mucronate* capsule, anth. as long as their filaments.—*E. B.* 801. *St.* 13. 8. *J. uliginosus* and *J. subverticillatus* Sm.—Extremely variable in size and the direction of its stems, sometimes erect, at others prostrate and rooting at every joint, or floating. Caps. very obtuse, pale brown. Fl. often viviparous. "Stam. 3." Anth. linear-oblong, quite as long as their filaments.—Hoppe figures (*St.* 78. 2.) and Koch describes (*Syn.* 730.) a plant closely allied to this but differing in having 6 stam., and filaments nearly twice as long as their elliptical anth., under the name of *J. nigritellus* Don; but a comparison of the above specific characters, or especially of the figures in *E. B. S.* and *Sy.*, will show that they are very different plants, one being most nearly allied to *J. lamprocarpus* and the other to *J. supinus*. I possess this plant from the bogs of Cunnamara and believe that it will prove to be a distinct species.—Boggy and wet places. P. VI. —VIII.

***** *No barren stems. Flowers solitary, remote or corymbose and forming a terminal panicle. Seeds not appendaged.*

19. *J. squarrosus* (L.); *st. naked* simple, l. linear channeled radical, panicle terminal compound with cymose branches, *segments of perianth ovate-lanceolate* acute or rather obtuse *as long as the* obovate obtuse mucronate *capsule*, anth. 4 times as long as their filaments.—*E. B.* 933. *St.* 36. 11.—St. erect, 6—12 in. high. L. numerous, somewhat spreading, rigid, half as long as the stem. Caps. pale brown, shining.—Wet heaths and moors. P. VI. VII.

20. *J. compressus* (Jacq.); st. with 1 leaf in the middle, l. linear channeled, panicle terminal compound subcymose usually shorter than the bract, *segments of perianth oval-oblong obtuse* shorter than the *shortly mucronate capsule*.—*E. B.* 934. *St.* 36. 13.—St. slender, erect, round and leafy below, naked and compressed above. Floral bracts usually pale. Perianth greenish with two brown lateral ribs. "Style half the length of the ovary." Anth. at least twice as long as the filaments (?).—Damp places. P. VI.—VIII.

21. *J. cænosus* (Bich.); st. with 1 or more leaves, l. linear channeled, panicle terminal compound subcymose usually longer than the bract, *segments of perianth* oval-oblong obtuse *about as long as the oval-oblong strongly mucronate capsule*.—*E. B. S.* 2680. *St.* 71. 8.—Similar to the preceding, and perhaps not distinct from it. St. trigonous in its upper part. Floral bracts usually shining brown. Perianth brown, with a broad green keel. "Style as long as the ovary." Anth. and filaments about

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equal (?).—Not being quite satisfied of this being *J. Gerardi* (Loisel.) I have considered it better to retain Mr. Bicheno's name provisionally.—Salt marshes. P. VI.—VIII. *Mud Rush.*

22. *J. tenuis* (Willd.); "st. above shortly dichotomous panicled, l. linear-setaceous grooved, fl. solitary approximate mostly sessile, *caps. nearly spherical shorter than the very acuminated leaves of the perianth.*" *Hooker.—E. B.* 2174. *J. Gesneri Sm.*—Distinguished from the following by its capsule. Smith states that the true *J. tenuis* (Willd., Pursh) differs essentially by having a cymose not racemose panicle. I am not acquainted with the Scottish plant.—"By a rivulet in marshy ground, among the mountains of Clova. Near the summits." *Mr. G. Don.* P. VII. S.

23. *J. bufonius* (L.); st. leafy dichotomous, l. setaceous, fl. solitary unilateral scattered mostly sessile, segments of the perianth unequal lanceolate-acuminate longer than the *oblong obtuse capsule.—E. B.* 802. *St.* 36. 12.—St. 4—8 in. high, usually with only 1 leaf on the slender stems.—*β. fasciculatus* (Koch); st. shorter (2—3 in. high) and thicker, fl. 2 or 3 together.—Marshy and wet places. A. VII. VIII. *Toad Rush.*

[*J. pygmæus* (Thuil.), which has a pyramidal caps. and closely resembles *J. bufonius β*, will probably be found in Britain.]

3. Luzula *DeCand.*

1. *L. sylvatica* (Bich.); l. linear-lanceolate hairy, *panicle subcymose doubly compound,* peduncles elongated, clusters about 3-flowered, segments of perianth bristle-pointed as long as the ovate-mucronate capsule, filaments very short, seed minutely tubercled at the end.—*E. B.* 737. *St.* 36. 14. *L. maxima* DC., Koch. *Juncus sylvaticus* Huds.—Underground st. woody. St. 12—18 in. high. L. broad, shining, striated with hairy edges. Panicle much longer than the leafy bracts.—Shady places. P. IV.—VI. *Great Woodrush.*

2. *L. Forsteri* (DC.); l. linear hairy, panicle subcymose only slightly branched, *peduncles* 1-*flowered erect* with fl. and fr., filaments about as long as the anth., *caps. acute, seeds with a straight blunt crest.—E. B.* 1293. *St.* 77. 2.—St. slender, about a foot high.—Thickets, rather rare. P. V. E.

3. *L. pilosa* (Willd.); l. lanceolate hairy, panicle subcymose only slightly branched, *peduncles* 1-flowered *reflexed* after flowering, filaments about half as long as the anth., *caps. blunt, seeds with a falcate crest.—E. B.* 736. *St.* 77. 3.—St. slender 6—12 in. high.—Thickets. P. V.

4. *L. campestris* (Willd.); l. linear hairy, *panicle of* 3 or 4 ovate dense *sessile or stalked clusters,* segments of perianth lan-

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ceolate-acuminate, *filaments much shorter than the anthers*, caps. obtuse apiculate, "*seeds* reniform" *with a basal appendage.*—*E. B.* 672. *St.* 77. 5.—St. 4—6 in. high. Anth. linear, about 6 times as long as the filaments.—Pastures and dry places. P. IV. V.

5. *L. multiflora* (Lej.); l. linear hairy, panicle of numerous ovate dense sessile or stalked clusters, segments of perianth narrowly-lanceolate strongly acuminate, *filaments about as long as the anthers*, caps. obtuse apiculate, *seeds oblong with a basal appendage.*—*E. B. S.* 2718. *St.* 77. 7. *L. congesta* Sm.—St. 8—12 in. high. Filaments more than half as long as the rather short anth. and often equalling them. Panicle with the clusters nearly all stalked, or (β. congesta, *L. congesta*, Lej., *L. campestris* β. Hook.) contracted into a rounded lobed head. I introduce this as a species in order to draw attention to the character which appears to distinguish it from *L. campestris*, that its constancy may be ascertained. As far as my observation has extended I have found it to be constant and therefore hold the species to be distinct.—Moorish and turfy places. P. VI.

6. *L. spicata* (DC.); l. narrow slightly channeled hairy, *panicle an oblong lobed nodding spike*, clusters shorter than their bracts, segments of perianth narrow acuminate bristle-pointed, filaments half as long as the anthers, caps. obtuse apiculate, seeds oblong with a very slight basal appendage.—*E. B.* 1176. St. 3—12 in. high. L. short, slender. Spike ½—1 in. long, nodding. Partial bracts tapering, bristle-pointed.—Highland mountains. P. VII.

7. *L. arcuata* (Hook.); l. channeled slightly hairy, *panicle subumbellate* of few 3—5-flowered *clusters on long drooping peduncles*, segments of perianth broadly-lanceolate bristle-pointed, filaments equalling the anthers, caps. roundish-ovate, "seeds oblong obtuse or apiculate scarcely appendaged below."—*E. B. S.* 2688.—St. slender 2—5 in. long. L. short, curved, narrowly linear. Panicle of 3—5 small clusters, 1 nearly sessile, the others on long deflexed stalks.—Highest summits of Cairngorum and Sutherland mountains. P. VII. VIII. S.

Order LXXXVII. ALISMACEÆ.

Perianth free, 6-parted, coloured. Stam. 6—9 or more. Ovaries 3—6 or numerous. Styles and stigmas the same. Caps. not bursting, 1- or many-seeded. Embryo straight or curved, albumen 0.

Suborder I. ALISMOIDEÆ.

Three inner segments of the perianth petaloid. Seeds 1—2 in

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each cell, erect or ascending. Placenta sutural. Embryo cylindrical, doubled upon itself, radicle next the hilum.

1. ALISMA. Fl. perfect. Cal. of 3 leaves. Pet. 3. Stam. 6. Carp. numerous, 1-seeded, not bursting.

2. ACTINOCARPUS. Fl. perfect. Cal. of 3 leaves. Pet. 3. Stam. 6. Carp. 6—8, 2-seeded, combined at the base and spreading in a radiant manner.

3. SAGITTARIA. Fl. monœcious. Cal. 3-leaved. Pet. 3. Male fl. with numerous stam. Female fl. with numerous 1-seeded compressed carpels upon a globose receptacle.

Suborder II. BUTOMEÆ.

Three inner segments of the perianth petaloid. Seeds numerous, minute. Placenta ramified over the inner surface of each capsule. Embryo straight or curved, radicle next the hilum.

4. BUTOMUS. Perianth 6-parted, coloured, resembling a corolla. Stam. 9, 3 interior. Caps. 6, connected below, bursting inwards.

Suborder III. JUNCAGINEÆ.

Perianth uniform, herbaceous, or 0. Seeds 1—2, erect, approximated at the base. Embryo straight, radicle at the opposite end from the hilum, plumule coming through a lateral cleft in the embryo.

5. SCHEUCHZERIA. Perianth of 6 leaves. Stam. 6, with slender filaments. Ovaries "with 2 ovules." Style 0. Stigma adnate to the ovary, downy. Caps. compressed, inflated, diverging 1- "or 2-" seeded.

6. TRIGLOCHIN. Perianth of deciduous leaves. Stam. 6, anth. almost sessile. Ovaries 3—6, with single ovules. Style 0. Stigmas feathery. Caps. attached to an angular axis from which they at length separate at the base.

Suborder I. *Alismoideæ.*

1. ALISMA *Linn.*

1. *A. Plantago* (L.); fl.-stalk panicled with whorled compound branches, carp. rounded at the end not awned with 1 or 2 striæ on the back, fr. depressed obtusely trigonous, l. cordate-ovate or lanceolate.—*E. B.* 837.—L. all radical, on long stalks. Flower-stalk 2—3 feet high. Fl. pale rose-colour.—*β. lanceolatum* (Sm.); l. lanceolate attenuated below. *A. lanceolata* With.—By water. P. VII. VIII. *Great Water-plantain.*

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2. *A. natans* (L.); st. floating and rooting leafy, peduncles simple from the joints of the stem, carp. "*obliquely acuminated* striated in a globose head," floating l. stalked oblong obtuse, radical l. (leafless petioles) linear-tapering sessile.—*E. B.* 775. *R. Icon.* f. 77. 78.—St. slender, floating, the few lowest joints rooting at the bottom of the water. Fl. rather large, white with a yellow spot.—Lakes, rare. P. VIII.

3. *A. ranunculoides* (L.); fl.-stalks umbellate, *carp. acute with 5 angles* collected into a globose squarrose head, l. linear-lanceolate acute.—*E. B.* 326. *R. Icon.* f. 79.—L. all radical, on long stalks. Flower-stalks from a few in. to 2 feet high, terminating in a simple umbel or 2 umbellate whorls of simple peduncles. Fl. pale purple.—*β. repens* (Sm.); plant depressed with creeping scions, fl. larger. *A. repens* (Dav.) *E. B. S.* 2722.—Turfy bogs. *β.* Margins of lakes in Wales and Scotland. P. VI. VII. *Lesser Water-plantain.*

2. ACTINOCARPUS *R. Br.*

1. *A. Damasonium* (R. Br.); stalks with 1—3 whorls of fl., carp. subulate compressed opening longitudinally, l. cordate-oblong.—*E. B.* 1615. *Alisma* Sm. *Damasonium stellatum* Kunth. —L. all radical, floating, on long stalks. Pet. white. Carp. large, with 2 stalked seeds, 1 from the lower angle erect, the other from the upper horizontal.—Ponds and ditches, rare. P. VI. VII.—E.

3. SAGITTARIA *Linn.*

1. *S. sagittifolia* (L.); l. arrowshaped with lanceolate straight lobes, fl.-stalk simple, fl. whorled.—*E. B.* 84.—L. remarkably arrowshaped, rising above the water. Submersed petioles without a limb. Fl. white.—Ditches and rivers. P. VIII. *Arrow-head.* E. I.

Suborder II. *Butomeæ.*

4. BUTOMUS *Linn.*

1. *B. umbellatus* (L.). The only species.—*E. B.* 651.—A beautiful plant. Flower-stalk radical, 2—3 feet high, longer than the leaves, bearing an irregular many-flowered simple umbel with scarious bracts and a membranous involucre. Fl. rose-coloured. L. all radical, linear.—Rivers and ponds. P. VI. VII. *Flowering-rush.*

Suborder III. *Juncaginæ.*

5. SCHEUCHZERIA *Linn.*

1. *S. palustris* (L.). The only species.—*E. B.* 1801. *St.* 78. 4. —St. 6—8 in. high, erect. L. distichous, few, alternate, semi-

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cylindrical, obtuse, with a minute pose on the upper side at the apex. Raceme terminal of about 5 greenish flowers. Caps. about 3, much inflated.—Sphagnous parts of bogs. Lakely Car, Boroughbridge. Thorn Moor, Doncaster. Bomere, Salop. Methvin, Perth. P. VII. E. S.

6. TRIGLOCHIN *Linn.*

1. *T. maritimum* (L.); fr. ovate angular of 6 combined capsules.—*E. B.* 255. *St.* 78. 5.—L. all radical, linear. Fl. in a lax simple spike or raceme, greenish.—Salt marshes. P. VII. VIII.

2. *T. palustre* (L.); fr. linear angular of 3 combined capsules.—*E. B.* 366.—Taller than the preceding but closely resembling it. Stoloniferous.—Marshy places. P. VI. VII.

Order LXXXVIII. AROIDEÆ.

Fl. mostly unisexual, arranged upon a spadix. Perianth 3—4- or 6-parted or 0. Stam. numerous or definite and opposite to the segments of the perianth. Anth. bursting outwards. Ovaries free, solitary or numerous, 1—3-celled, 1- or many-seeded. Stigmas 1 or 2. Fr. not bursting, succulent or dry. Embryo in the axis of fleshy albumen.—The characters of this and the preceding order appear to require revision and probably a new arrangement of the genera.

Suborder I. TYPHINEÆ.

Fl. numerous, with a perianth. Stam. 3. Anth. wedgeshaped, erect. Filaments long, slender.

1. TYPHA. Sterile and fertile spikes cylindrical. Stam. surrounded with setæ. Anth. 3 together on one filament. Ovary surrounded with setæ, at length stalked.

2. SPARGANIUM. Fl. in dense globose heads, each with a single 3-leaved perianth. Drupe dry, sessile.

Suborder II. ARINEÆ.

Fl. numerous. Anth. 1—2- or many-celled, ovate. Filaments very short.

3. ACORUS. Spath 0. Perianth 6-leaved, inferior, persistent. Stam. 6, filiform. Caps. not bursting.

4. ARUM. Spath of 1 leaf, convolute at the base. Perianth 0. Male fl. of 1 sessile 2-celled anther. Female fl. lowermost on the spadix, of a solitary pistil. Fr. a berry.

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Suborder III. LEMNEÆ.

Perianth 0. Fl. 2, monœcious, in a membranous spath.

5. LEMNA. Spath 2-flowered, membranous, urceolate. Male fl. of 2 stamens. Fr. utricular, indehiscent.—Fronds without distinct stem or leaves. Fl. from just beneath the margin of the frond.

Suborder I. *Typhineæ.*

1. TYPHA *Linn.*

1. *T. latifolia* (L.); l. linear nearly flat, sterile and fertile catkins contiguous.—*E. B.* 1455.—St. 6—7 feet high. L. overtopping the inflorescence, very broad. Catkins very long.—Ponds and lakes. P. VI. *Great Reed-mace.*

2. *T. angustifolia* (L.); l. linear channeled below, sterile and fertile catkins a little separated from each other.—*E. B.* 1456.—St. 5—6 feet high, much slenderer than in the preceding. L. very narrow, overtopping the inflorescence. Catkins very long, slender, separated by an interval of about an inch.—Lakes and ponds. P. VI. VII. *Lesser Reed-mace.*

[3. *T. minor* (Sm.); l. linear-setaceous, sterile and fertile catkins distant, the latter at length elliptical.—*E. B.* 1457.—Reported to have been found on Hounslow Heath. *Dillenius.* P. VII.] E.

2. SPARGANIUM *Linn.*

1. *S. ramosum* (Huds.); l. triangular at the base with concave sides, *st. branched,* stigma linear.—*E. B.* 744.—About 2 feet high. L. long. Fl. in spherical heads.—Ditches. P. VII. *Branched Bur-reed.*

2. *S. simplex* (Huds); l. triangular at the base with flat sides, *st. simple, stigma linear.*—*E. B.* 745.—About 1 foot high. St. not branched but the lower heads of fl. are stalked.—Ditches. P. VII. *Simple Bur-reed.*

3. *S. natans* (L.); l. floating flat, st. simple, *stigma oblong.*—*E. B.* 273.—St. often very long, floating. L. very long, pellucid. Heads of fl. few, barren head usually solitary.—Lakes and ditches. P. VII. VIII.

Suborder II. *Arineæ.*

3. ACORUS *Linn.*

1. *A. Calamus* (L.); scape with a long leafy prolongation beyond the spadix.—*E. B.* 356.—St. 5—6 feet high, resembling the l., ensiform, flattened. Spadix completely covered by the

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flowers, 2—3 in. long, lateral. St. and l. sweet-scented when crushed.—In water, rare; more common in Norf. and Suff. P. VI. *Sweet-flag.* E. S.

4. ARUM *Linn.*

1. *A. maculatum* (L.); l. all radical hastate-sagittate green or spotted with purple, spadix clubshaped straight obtuse shorter than the spath.—*E. B.* 1298.—Root tuberous. L. with branching veins. Spath large. Spadix with ovaries at the base; above them whorls of anth.; above these a few filaments, probably abortive ovaries; club naked. Berries scarlet, remaining after the rest of the plant has disappeared.—Hedge-banks and thickets. P. IV. V. *Cuckow-pint.*

Suborder III. *Lemneæ.*

5. LEMNA *Linn.* Duckweed.

1. *L. trisulca* (L.); *fronds* thin pellucid elliptic-*lanceolate* tailed at one end serrated at the other, roots solitary.—*E. B.* 926.—Roots tipped with a sheath. Fronds half an in. long, proliferous at right angles. "Filaments recurved, filiform." *Schleid.* Plants truly annual, producing gemmæ which survive the winter as in the other species.—Stagnant water. A. VI.

2. *L. minor* (L.); *fronds obovate compressed* opaque, roots solitary.—*E. B.* 1095.—Fronds 1—2 lines long, nearly flat beneath, of a compact texture. "Filaments recurved, filiform." *Schleid.*—Stagnant water. A. VI. VII.

3. *L. polyrrhiza* (L.); *fronds roundish-obovate compressed,* roots numerous clustered.—*E. B.* 2458. *Spirodela* Schleid., Endl.—Fronds half an in. long, green above, purple beneath. "Filaments narrowed below." *Schleid.*—Stagnant water. A. Fl. have not been seen in Britain.

4. *L. gibba* (L.); *fronds obovate* nearly flat above *hemispherical* and spongy *beneath,* roots solitary.—*E. B.* 1233. *Telmatophace* Schleid., Endl.—Fronds 1—2 lines long, remarkably gibbous and cellular beneath. "Filaments recurved, dilated in the middle." *Schleid.* See an excellent account of the germination of this plant, by Mr. Wilson, in *Bot. Misc.* i. 145. t. 42.—Stagnant water. A. VI.—VIII.

Order LXXXIX. POTAMEÆ.

Fl. perfect or unisexual. Perianth inferior, 4-parted, or 0. Stam. definite, hypogynous. Ovaries 4, or 1, distinct, each with 1 ovule. Fr. dry, not bursting, 1-seeded. Seed pendu-

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less. Albumen 0. Embryo straight or curved, with a lateral cleft.

1. POTAMOGETON. Fl. perfect. Perianth 4-parted. Anth. 4, sessile, opposite to the divisions of the perianth. Ovaries 4, styles 0. Drupes or nuts 4, sessile.

2. RUPPIA. Fl. perfect. Perianth 0. Stam. 2, the cells considerably separated, filaments very short scalelike. Ovaries 4, styles 0. Nuts 4, with long stalks.

3. ZANNICHELLIA. Fl. imperfect. Male fl. with 1 stam. and no perianth. Fem. fl. with a bellshaped perianth, persistent style, peltate stigma. Nuts 3—5 or more, very shortly stalked.

4. ZOSTERA. Stam. and pistils inserted in 2 rows upon one side of a spadix. Spath linear, terminating in a leafy point. Fl. naked. Anth. 1. Ovary 1, style 1, stigmas 2.

1. POTAMOGETON *Linn.* Pondweed.

* *L. alternate, upper l. floating and sometimes opposite, stipules free.*

1. *P. natans* (L.); l. all stalked, upper coriaceous floating ovate or elliptical, lower l. linear or lanceolate or setaceous, *petioles plano-concave above, nuts (large) rounded on the back when fresh keeled when dry,* peduncles equal.—*E. B.* 1822.—A creeping rhizoma at the bottom of the water. Lowermost l. often quite setaceous; upper l. more or less cordate at the base, when pressed flat a ridge is formed on each side of the base. Nuts 2 lines long.—*P. fluitans* (Roth) according to Koch differs from this by having its *petioles convex above* and its fresh nuts rather acute on the back. It is probably a native.—Ponds, ditches, and slow streams. P. VI. VII.

2. *P. oblongus* (Viv.); *l. all stalked,* upper coriaceous floating oblong-elliptical, lower l. linear-lanceolate, petioles plano-concave above, *nuts minute always obtuse and rounded on the back,* peduncles equal.—*E. B. S.* 2849.—St. creeping below. Lower l. often very narrow. Nuts not exceeding 1 line in length, rounded on the back in the fresh and dry state.—Ditches, small streams, ponds. P. VII.

3. *P. plantagineus* (Ducr.); *l. all stalked membranous and pellucid* blunt entire, upper elliptical, lower l. oblong, petioles plano-concave above, *nuts minute* rounded on the back when fresh *acutely keeled when dry,* peduncles equal.—*E. B. S.* 2848.—St. creeping below, branched, sometimes throwing out long scions from its upper axils. L. all beautifully transparent and netted with veins, the upper often nearly sessile and nearly orbicular.

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Nuts not exceeding 1 line in length.—Stagnant peaty water. P. VI. VII.

4. *P. rufescens* (Schrad.); *submersed l.* lanceolate narrowed at both ends *subsessile* membranous pellucid *entire not apiculate*, floating l. subcoriaceous obovate obtuse narrowed into a short petiole, stip. without wings, nuts acutely keeled, peduncles equal. —*E. B.* 1286. *P. fluitans* Sm.—St. simple. Upper l. alone slightly coriaceous, often tinged with purple, longer than their stalks; submersed l. all nearly, if not quite, sessile.—*P. spathulatus* (Schr.) differs from this by having *long stalks to all its leaves* and the upper ones truly coriaceous. Is it a native?—Ditches and slow streams. P. VII.

5. *P. heterophyllus* (Schreb.); *submersed l. lanceolate narrowed at both ends sessile denticulate and apiculate*, floating l. subcoriaceous elliptical stalked, *stip.* broadly lanceolate obtuse *with* 2 *stout prominent ribs*, lower ones linear-lanceolate, *nuts obtuse on the back, peduncles swelling upwards.—E. B.* 1285. *P. gramineus* Fries, Koch, Linn.?—St. much branched below. Lower stip. without the two strong ribs and equally nerved, upper ones widely spreading. Dry nut slightly marked with 3 ridges on the back.—*P. nitens* (Weber) has the submersed l. rounded and clasping at the base and the floating l. more coriaceous.—Ponds and ditches. P. VI. VII.

6. *P. lanceolatus* (Sm.); *submersed l.* lanceolate sessile narrowed at both ends *entire not apiculate*, floating l. subcoriaceous elliptic-lanceolate stalked, stip. linear-lanceolate acute uppermost broader, nuts....., *peduncles equal.—E. B.* 1985.—St. very slender, slightly branched, floating l. not always present. Uppermost stip. apparently with 2 stronger dorsal ribs. Nuts unknown.—Streams, rare. Rivulet between Bodafon and Lligwy, Anglesea. Angus. Kincardineshire. Elgin. P. VII. VIII. E. S.

** *L. all submersed, membranous, lanceolate or broader; stipules free.*

7. *P. lucens* (L.); *l.* pellucid oval lanceolate stalked *denticulate* and apiculate, *stip. winged*, nuts "obtuse on the back and slightly keeled when fresh," peduncles swelling upwards, spikes cylindrical densely flowered.—*E. B.* 376.—Combined by some authors with *P. heterophyllus*, but appears to be sufficiently distinct. All the stipules have two prominent wings on their back and are longer and narrower in proportion. Spikes long, about equalling the peduncles. According to Mr. W. Wilson "ovate-lanceolate moderately acute coriaceous l." sometimes occur, but I suspect the existence of another species.—A variety is occasionally found with the limb of the l. much reduced in size and the midrib prominent and resembling a long spine, which is, re-

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cording to Koch, the *P. acuminatus* Schum.—Common in deepish water. P. VI.

8. *P. longifolius* (Gay); *l.* pellucid *elongate-lanceolate* narrowed below *entire* apiculate, stip. winged, nuts....., peduncles very long swelling upwards, spikes with few subverticillate distant flowers. —*E. B. S.* 2847.—St. long, slender. L. distant, *quite entire*, nearly sessile with very short stalks. *Stipules green*, lanceolate, with 2 narrow wings on the back. Peduncles 6—8 in. long and much thicker than the stem, suddenly contracting at the spike which is about an inch long and has the fl. rather more decidedly whorled than they are represented in *E. B. S.* The nuts have not been described.—Deep water. Lough Corrib, Galway; and near the larger island in Rydal Water, Westmoreland, *Mr. J. Ball.* P. VIII. E. I.

1835 not since

9. *P. prælongus* (Wulf.); *l.* pellucid *elongate-oblong half-clasping obtuse and hooded at the end entire, stip. not winged, nuts* rounded on the back when fresh *keeled when dry*, peduncles very long equal, spikes many-flowered.—*E. B. S.* 2858.—St. long, growing in deep water and forming dense masses of foliage just below the surface. Peduncles 6—12 in. long. Spikes 1—2 in. long.—Rivers and ditches, rare. P. VI.

10. *P. perfoliatus* (L.); *st. round*, *l.* pellucid *cordate-ovate* clasping *serrulate* plane, nuts rounded on the back when fresh, keeled when dry, peduncles equal.—*E. B.* 168.—St. long, slightly branched. Peduncles rather thick and short. Spikes short.—Lakes and streams. P. VII.

11. *P. crispus* (L.); *st. compressed*, *l.* pellucid *linear-oblong* obtuse sessile serrulate wavy, *nuts with long beaks* keeled on the back when dry, peduncles equal.—*E. B.* 1012.—St. much branched. Peduncles elongated. Spikes few-flowered. Beak as long as the nut. L. usually crisped at the edges, occasionally plane when it is *P. serratum* Huds.—Ditches and streams. P. VI.

*** *L. all submersed, alternate, linear; stipules free.*

12. *P. zosteræfolius* (Schum.); st. flattened, *l.* linear-acuminate *with* 3 *principal ribs and numerous* close parallel *intermediate nerves* occupying the whole surface, *spikes cylindrical upon long peduncles*, nuts obovate keeled, style terminal.—*E. B. S.* 2685. *P. cuspidatus* Sm., *P. compressus* "L.," Fries, Koch.—Peduncles 2—4 in. long. Spikes 10—15-flowered. L. suddenly acuminate or apiculate.—Rivers and lakes. P. VI. E. S.

13. *P. acutifolius* (Link); st. flattened, *l.* linear-acuminate *with* 3 *principal ribs and numerous* close parallel *intermediate veins* occupying the whole surface, *spikes ovate about as long as the short peduncle*, nuts reniform acutely keeled, style facial.—*E. B. S.* 2609.—Peduncles very short. Spikes 4—6-flowered. L. gradu-

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ally acuminate. Styles a continuation of the straight inner edge of the nuts.—Marsh ditches in Sussex. P. VI. E.

14. *P. gramineus* (L. ?); st. slightly compressed with rounded edges, *l.* linear 3-nerved, *spikes ovate dense continuous* about as long as the short peduncle, nut obovate keeled.—*E. B.* 2253. *P. obtusifolius* M. and K.—St. slender, much branched. Peduncles very short. L. rounded off to a slight point at the end, with a few oblong reticulations next the midrib but wanting the numerous parallel nerves of the two preceding species.—Ponds and ditches, rare. P. VI. VII.

15. *P. pusillus* (L.); st. slightly compressed, *l. linear* 3—5-*nerved*, spikes short often interrupted 2 or 3 times shorter than their peduncles, *nut obliquely elliptical* obtusely keeled.—*E. B.* 215.—St. slender. L. narrow, rather acute without intermediate parallel veins. Spikes compact.—*β. major* (Fries); l. broader 5-nerved, spikes slightly interrupted. *P. compressus* Sm. *E. B.* 418.—*P. trichodes* (C. and S.) is closely allied to this but has setaceous-linear l., interrupted spikes, and semi-orbicular acutely-keeled nuts; also *P. gracilis* (Fries) which has subglobose spikes, and elliptical-globose nuts without keels.—Ponds and ditches. P. VI.

******** *L. all submersed, alternate, linear; stipules adnate.*

16. *P. zosteraceus* (Fries); *l. linear-acuminate* obscurely 3-nerved with connecting veins, spikes interrupted, *nuts* (large) roundish-obovate *rounded on the back with a prominent keel* when dry.—*Fries Nov.* ed. 2. p. 51.—This and the two following species are very closely allied, but may be easily distinguished by attending to the characters derived from the nut. The present species approaches the preceding by its leaves. Its nuts are 2 lines long with a somewhat facial style and a prominent rounded keel when dry, but no lateral ridges.—In the Serpentine, Hyde Park, London. *Dr. J. A. Power.* P. VII. E.

17. *P. pectinatus* (L.); *l. linear-setaceous* 1-nerved with transverse veins, spikes interrupted, *nuts* (large) roundly obovate rounded on the back *with two lateral ridges but no keel when dry.*—L. narrower and more gradually acute than in the preceding. Nuts 2 lines long with a somewhat facial style, their back rounded and prominent with a ridge on each side but no true keel when dry. From the want of authentic specimens I am unable to be quite certain of my plant corresponding with that of Fries, Koch, &c., for they describe the nut as keeled, which can scarcely be correctly said of our plant.—Ponds, scarce. Jersey. Surrey. P. VI. E.

18. *P. filiformis* (Nolte !); *l. linear-setaceous* 1-nerved with transverse veins, *spikes greatly interrupted, nuts* (smaller) obovate rugose *rounded on the back without keel or ridges* when dry.—

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E. B. 323. *P. marinus* Fries, Koch.—L. like those of the preceding but longer. Nuts smaller and rounded on the back without keel or ridges. Whorls very distant on the spikes. Peduncles very long.—Rare? Lakes in Forfarshire. P. VI. VII. E.? S.

***** *L. all opposite, submersed; stipules none.*

19. *P. densus* (L.); *l. all opposite* pellucid clasping elliptical-lanceolate or lanceolate, spikes shortly stalked ultimately reflexed. —*E. B.* 397.—L. crowded, rather recurved. Spike 4-flowered. —Ditches. P. VI.

2. RUPPIA *Linn.*

1. *R. maritima* (L.); cells of the anthers oblong.—*R. Icon.* f. 397.—Whole plant stronger than the next. L. very narrowly linear. Sheaths large inflated. Nut ovate, obliquely erect.—Salt marshes. Guernsey. P. VII. VIII. O.

2. *R. rostellata* (Koch); cells of the anthers nearly round.—*E. B.* 136?—Whole plant very slender. L. rather filiform than linear. Sheaths small, close. Nut very obliquely ascending but less so than in continental specimens.—Salt marshes. P. VII. VIII.

3. ZANNICHELLIA *Linn.*

1. *Z. palustris* (L.); style at least half as long as the nut.—*E. B.* 1844.—Floating. L. slender, opposite, filiform. Fl. axillary, sessile. Anth. 2—4-celled. Stigma generally notched at the margin. Nuts very shortly stalked.—*β. pedunculata*; cluster of fr. stalked, nuts with elongated stalks. *Z. pedunculata* R. —*Z. polycarpa* (Nolte) is distinguished by its very short style scarcely a sixth of the length of the nut.—Stagnant water. A. or P. VII. VIII. *Horned Pondweed.*

4. ZOSTERA *Linn.*

1. *Z. marina* (L.); l. obscurely 3-nerved, nuts striated.—*E. B.* 467.—Fl. hidden in a long sheathing portion of the leaf. —Two forms are distinguished by continental botanists: 1. *Z. marina* (L.); l. 3-nerved, *peduncle* of the spath swelling upwards, stem terete. 2. *Z. uninervis* (R.); l. 1-nerved, peduncle equal, stem compressed.—In sea-water. P. VII. VIII.

Subclass II. GLUMACEÆ.

Floral envelopes imbricated.

Order XC. CYPERACEÆ.

Fl. perfect or unisexual, each with a scale or glume imbricated on a common axis. Perigone 0, or rarely membranous. Stam.

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hypogynous, definite. Anth. erect, fixed by the base, entire at the apex. Ovary 1-celled, often surrounded by bristles. Style simple, trifid or bifid.—L. with entire sheaths.

Tribe I. *CYPEREÆ*. Fl. perfect. Glumes 2-ranked.

1. Cyperus. Spikelets 2-ranked. Glumes of 1 valve, numerous, keeled, nearly all with flowers. Bristles 0. Perigone 0.

2. Schœnus. Spikelets 2-ranked, 2—4-flowered. Glumes 6—9, lower ones smaller, empty. Bristles few or 0.

Tr. II. *SCIRPEÆ*. Fl. perfect. Glumes imbricated on all sides. Perigone 0.

3. Cladium. Spikelets 1—2-flowered. Glumes 5 or 6, the lower ones empty and smaller. Bristles 0. *Nut with a thick fleshy coat*, tipped with the slender base of the style.

4. Rhynchospora. Spikelets few-flowered. Glumes 6 or 7, lower ones empty or smaller. *Bristles about* 6. *Nut* compressed convex on both sides *crowned with the dilated base of the style.*

5. Eleocharis. Glumes fertile, *lowermost larger*, 1 or 2 of the lowest empty. Bristles 3—6. Nut compressed, crowned with the persistent dilated base of the style.

6. Scirpus. Glumes fertile, nearly equal, or lowermost larger, 1 or 2 of the lowest empty. Bristles about 6 or 0. *Nut* plano-convex or trigonous, *tipped with the filiform not dilated base of the style.*

7. Elymus. Glumes fertile, outermost the largest and empty. *Bristles* 3—6. *Style* not thickened at the base, *persistent.* Nut plano-convex, tipped with the not-dilated base of the style. *Spikelets bracteated, alternate, forming a close distichous compound terminal spike.*

8. Eriophorum. Glumes fertile, nearly equal, lowermost sometimes empty. *Bristles ultimately much longer than the glumes* and accompanying the fr., *silky.* Nut trigonous.

Tr. III. *ELYNEÆ*. Fl. diclinous. Perigone 0 or formed of 1 or 2 scales.

9. Kobresia. Spikes aggregate. Lower fl. fem., perigone of 1 scale inclosing the germen and covered by the glume. Upper fl. male, without any perianth.

Tr. IV. *CARICEÆ*. Fl. diclinous. Nut completely inclosed in the urceolate perigone.

10. Carex. Fl. in imbricated spikes, each covered by a glume. Female fl. with a single urceolate persistent peri-

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gone, 1 style and 2—3 stigmas. Male fl. of 3 stam., without a perianth.

Tribe I. *Cypereæ.*

1. Cyperus *Linn.*

1. *C. longus* (L.); spikelets linear-lanceolate in erect twice compound umbels, peduncles of partial umbels erect unequal, stigmas 3, root creeping.—*E. B.* 1309. *St.* 52. 10.—St. triangular, 2—3 feet high. Umbel very large unequal, its stalks triangular and closely sheathed at the base, its base with 2 or 3 long leaves. Glumes brownish-red, with green keels and pale margins.—South of England, rare. P. VII. E.

2. *C. fuscus* (L.); spikelets linear-lanceolate in small roundish heads at the extremities of the branches, glumes spreading, stigmas 3, root fibrous.—*E. B. S.* 2626. *St.* 52. 5.—A small nearly prostrate plant with numerous stems, 2—5 in. long. Heads with 3 unequal l. at the base. Glumes fuscous, with green keels.—A. Marshy meadow at Little Chelsea, Middlesex. Jersey. P. VIII. IX. E.

2. Schœnus *Linn.*

1. *S. nigricans* (L.); st. round naked, spikelets 5—10 collected into a terminal roundish head overtopped by the lower bract, glumes scabrous at the keel.—*E. B.* 1121. *St.* 40. 9.—Root of strong black fibres. St. 8—12 in. high, clothed at the base with blackish-brown smooth shining scales some of which terminate in setaceous erect leaves which are shorter than the stem. Bristles variable in number, short, rough with upward spines. Stigmas 3. Anth. terminating in a point. Glumes dark-brown or black.—Turfy bogs. P. VI.

Tribe II. *Scirpeæ.*

3. Cladium *Pat. Br.*

1. *C. Mariscus* (R. Br.); panicles lateral and terminal repeatedly compound, spikelets capitate, st. roundish leafy smooth, l. rough on the margins and keel.—*E. B.* 950.—Root creeping. St. 3—4 feet high. L. very long, rigid, narrowed and triquetrous towards the end, the margins and keel with fine but very acute serratures. Fl. in each spikelet 1—3, but usually only one nut is produced.—Bogs and fens, rare except in Cambridgeshire. P. VII. *Common Sedge.*

4. Rhynchospora *Vahl.*

1. *R. alba* (Vahl); spikelets in a compact corymb about as long as the outer bracts, stam. 2, bristles with deflexed teeth,

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base of the style without teeth.—*E. B.* 985. *St.* 40. 7.—Root slightly creeping. St. 6—12 in. high. L. narrowly-linear. Spikelets whitish. Bristles 9—12. Filaments slender.—*β. sordida*; spikelets brownish, in small oval clusters often overtopped by the outer bracts.—Turfy bogs. P. VII.

2. *R. fusca* (Sm.); spikelets in an oval head considerably shorter than the outer bracts, stam. 3, bristles with ascending teeth, base of the style with erect teeth.—*E. B.* 1575. *St.* 40. 6.—Root creeping extensively. St. 6—8 in. high. L. nearly filiform. Spikelets brown. Bristles 6. Filaments dilated. See *Leighton in Mag. Nat. Hist.* viii. 676.—Bogs, rare. South-west of England. Ireland. P. VII. VIII. E. I.

5. Eleocharis *R. Br.*

1. *E. palustris* (R. Br.); spikes terminal solitary oblong, glumes rather acute, stigmas 2, nut roundish-obovate plano-convex with rounded margins smooth crowned with the broadly-ovate base of the style and shorter than the 4 bristles, base of the *st. clothed with* membranous *obtusely-truncate sheaths.*—*E. B.* 131. *St.* 9.—Root extensively creeping. Sheaths almost exactly transversely-truncate with a very obtuse point on one side.—Wet and marshy places. P. VI.

2. *E. multicaulis* (Sm.); spikes terminal solitary oblong, glumes obtuse, *stigmas* 3, *nut acutely triquetrous* smooth crowned with the broad *triquetrous base of the style* as long as the 6 bristles, base of the *st. clothed* with obliquely truncate *rather acute sheaths.*—*E. B.* 1187. *St.* 78. 11.—Root slightly creeping. Sheaths truncate but with a rather acute angle on one side.—Marshy places. P. VII.

3. *E. acicularis* (Sm.); spike terminal solitary ovate, glumes obtuse, stigmas 3, *nut* obovate-oblong compressed longitudinally *ribbed and* transversely *striated* crowned with the turbinate base of the style, bristles short deciduous.—*E. B.* 749. *St.* 10.—Root fibrous with slender runners. St. numerous, slender, erect, 3—4 in. high. Spikes very small.—In damp places upon heaths. P. ?, A. (Koch) VII. VIII.

6. Scirpus *Linn.*

* *Bristles* 6. *Spikes numerous.*

† St. triangular; panicle leafy.

1. *S. maritimus* (L.); spikes stalked or sessile in a dense terminal cluster, bracts several foliaceous, glumes bifid with an intermediate point: segments acute, nut obovate trigonous smooth.—*E. B.* 542. *St.* 13. 3.—St. 1—3 feet high, leafy. Spikes large, sometimes solitary. Stigmas 3, or rarely 2.—Salt marshes. P. VII.

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2. *S. sylvaticus* (L.); spikes in a large cymose very compound terminal panicle, general bracts several foliaceous, glumes obtuse with a minute apiculus, nut obovate obtusely trigonous.—*E. B.* 919. *St.* 36. 8.—St. 2—3 feet high. Spikes very numerous, small, greenish, ovate. L. broad, flat. Stigmas 3.—*S. radicans* (Schk.), spikes all stalked, scions long and rooting, will probably be found.—Damp woods and banks. P. VII.

†† Stem triangular; panicle naked.

3. *S. trigonus* (Roth); *st.* round below obtusely *trigonous upwards*, spikes in a small cymose panicle, *glumes* emarginate mucronate *slightly punctate-scabrous* and pilose fringed, nut "convex on the back smooth."—*E. B.* 1983. *S. carinatus* Sm.—St. 2—4 feet high, convex between the angles, with 1 or 2 long sheaths at the base, the upper sheath in all my specimens terminates in a leaf of 3 or 4 in. long; most authors describe the plant as leafless. Lower bract much longer than the panicle. Stigmas 2.—By rivers, near London and in Sussex. P. VI. VII. E.

4. *S. triqueter* (L.); *st. acutely triquetrous throughout*, spikes in a small cymose panicle, *glumes* emarginate mucronate *glabrous* fringed: lobes rounded obtuse, nut "roundish-obovate plano-convex smooth."—*E. B.* 1694. *St.* 36. 3.—St. 3—4 feet high, flat or concave between the angles, with 1 or 2 long sheaths at the base the upper one terminating in a very short broad triquetrous leaf. Lower bract long and rigid, resembling a prolongation of the stem. Spikelets small, stalked and sessile. "Anth. with a short beardless point." Stigmas 2.—Muddy banks of the Thames near London; and the Arun near Amberley, Sussex. P. VIII.

5. *S. pungens* (Vahl); *st.* acutely triquetrous throughout, *spikelets* few *sessile*, glumes bifid mucronate smooth: *lobes acute*, nut roundish-obovate plano-convex smooth.—*E. B. S.* 2819. S. Rothii *Hoppe in St.* 36. 4. S. tenuifolius *DC.* S. triqueter *A. Sm.*—St. from a few inches to 1½ foot high, slender, with several sheaths at the base terminating in long narrow keeled leaves. Lower bract very long and rigid, resembling a prolongation of the stem. Spikelets large, ovate, obtuse, all sessile. Anth. with a subulate fringed point. Stigmas 2.—St. Ouen's Pond, Jersey. P. VI. VII. O.

††† Stem terete.

6. *S. lacustris* (L.); st. round, spikes in a terminal twice compound panicle, *glumes* emarginate mucronate *glabrous* fringed, *nut obtusely trigonous obovate*, stigmas 3.—*E. B.* 666. *St.* 36. 1.—St. 4—6 feet high, naked, with 1 or 2 long sheaths at the base. Anth. bearded at the end. Panicle not lateral although the bract

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sometimes closely resembles a continuation of the stem.—Rivers and ponds. P. VI. VII. *Bull Rush.*

7. *S. Tabernæmontani* (Gm.); st. round, spikes in a terminal compound panicle, *glumes* emarginate mucronate *punctate-scabrous* fringed, *nut* compressed *roundish-oblong* smooth, stigmas 2. —*E. B.* 2321. *S. glaucus* Sm.—St. 2 feet high, with 1 or 2 long leafless sheaths at the base. Anth. not bearded. Panicle smaller than in the preceding. Lower bract short. Fr. convex on one side.—Rivers and ponds. P. VI. VII.

** *Bristles 4—6. Spikes solitary, terminal.*

8. *S. cæspitosus* (L.); st. round striated with imbricated leafless acute scales and sheaths with *short subulate l. below*, spikes terminal solitary ovate few-flowered, glumes ovate membranous pointed, 2 outer ones as long as the spike inclosing it and terminating in long rigid leaflike points, nut obovate oblong mucronate smooth, bristles longer than the nut with a few erect teeth near the tip.—*E. B.* 1029. *St.* 10.—St. 3—6 in. long, numerous, erect, many of them barren. Bristles 6.—Barren turfy heaths. P. VI.—VIII.

9. *S. pauciflorus* (Lightf.); st. round striated with a few thin narrow leafless scales and *one tight abrupt leafless sheath* below, spikes terminal solitary ovate few-flowered, *glumes* ovate keeled membranous at their edges, 2 *outer* ones obtuse *shorter* than the spike and inclosing it, *nut* obovate mucronate *reticulate-striate, bristles shorter than the nut with deflexed teeth.*—*E. B.* 1122. *St.* 10. S. Baeothryon *Ehrh.*—St. 3—10 in. long, numerous erect many of them barren. Bristles 6.—Boggy moors and heaths. P. VI.—VIII.

10. *S. parvulus* (R. and S.); st. round with one close-pressed leafless sheath, *l. filiform* acute *radical* slightly dilated at the base and clasping the st., spikes terminal solitary oval few-flowered, glumes ovate obtuse keeled membranous, 2 outer ones rather longer, *nut* obovate-oblong mucronate *smooth, bristles twice as long as the* nut with deflexed teeth throughout.—*St.* 85. 1. *Limnochloa* R.! *Eleocharis* Hook. *S. nanus* Spr. *S. humilis* Walk. —Root fibrous with capillary scions. St. about an inch high, several from the same root. St. and l. with 2 or 3 longitudinal fibres and more or less perfect transverse lines. Bristles 4—6. Usually described as without sheaths, but I find them always present upon the stems in both British and German specimens, although the leaves which have probably been taken for stems are of course without them.—On a mud-flat near Lymington, Hants. *Rev. G. E. Smith.* It is feared that the station is now destroyed. It has probably been overlooked in other places. A. VII. E.

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*** *Bristles* 0.—† Spikes solitary.

11. *S. fluitans* (L.); st. floating branched leafy, l. fasciculate, fl.-stalks alternate with a sheathing l. at the base, spikes terminal solitary ovate few-flowered, glumes obtuse keeled membranous at their edges, 2 outer ones larger shorter than the spike and inclosing it, *nut obovate, bristles* 0, *stigmas* 2.—*E. B.* 216. *St.* 85. 2. —St. rooting from the lower joints and spreading to a great extent in a zigzag manner. The fascicles of l. and stalks springing from the joints of the stem exactly resemble the separate cæspitose plants of the preceding species, and I do not consider the absence of the bristles and one of the stigmas as a sufficient reason for removing it from the genus.—Ditches and ponds. P. VI. VII.

†† Spikes 1—3.

12. *S. setaceus* (L.); st. terete leafy at the base, spikes terminal, lower bract elongated so as to resemble a short continuation of the st., glumes obtuse mucronate, *nut* trigonous obovate *longitudinally ribbed* and transversely striated, bristles 0, stigmas 3.—*E. B.* 1693. *St.* 10.—St. tufted, slender, 3—6 in. high. Spikes small, sessile, considerably shorter than the lower bract. Glumes brown with whitish margins and a green keel.—Wet sandy and gravelly places. P.? VII.

13. *S. Savii* (S. and M.); st. terete leafy at the base, lower bract shorter or slightly longer than the terminal spikes, glumes obtuse submucronate, *nut* subglobose *rough with slightly elevated points*, bristles 0, stigmas 3.—*E. B. S.* 2782.—Closely resembling *S. setaceus*. Spikes varying considerably in length, sometimes ½ in. long. Glumes scarcely mucronate, greenish, usually with a brown spot on the upper part of each side.—*β. monostachys* (Hook.); spike small solitary, bract very short. *Isolepis pygmæa* Kunth.—*S. supinus* (L.) is closely allied to this but has transversely rugose nuts.—In many places near the coast. P. VII.

††† Spikes numerous, in heads.

14. *S. Holoschœnus* (L.); st. round, spikes in dense globular sessile or stalked heads, lower involucral bract erect long, glumes obovate emarginate mucronate: lobes rounded as long as the mucro.—*E. B.* 1612.—St. 3—4 feet high, round quite up to the cluster. Upper bract patent or ascending. Glumes variegated with fuscous and white, pilose. Anth. with an elongated entire point.—My friend Mr. R. M. Lingwood gathered at Watchet, Somerset, a plant which may probably prove to be a new species; it differs from this plant in the following points—*β. elegans*; st. compressed just below the cluster, glumes obovate rounded with a projecting mucro, anth. with an elongated point terminating in 3 teeth.—Sandy coast of Somerset and Devon, rare. P. IX.—E.

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7. Blysmus *Panz.*

1. *B. compressus* (Panz.); st. rather triangular, spikelets 6—8-flowered, outer glume shorter than the spikelet, bristles 3—6 strong persistent with deflexed teeth, l. flat rough on the edges and keel.—*E. B.* 791. *St.* 85. 6.—St. 6—8 in. high. Outer glume of the lowest spikelet with a subulate leafy point which often overtops the spike. Glumes reddish-brown, striated. Nut lenticular, shortly stalked, crowned with the long persistent style, shining.—Boggy pastures. P. VI. VII. E. S.

2. *B. rufus* (Link); st. round, spikelets 2—4-flowered, outer glume as long as the spikelet, bristles 1—6 slender deciduous with patent or ascending teeth, l. channeled not keeled smooth.—*E. B.* 1010. *St.* 85. 7.—St. slender. Glumes dark-brown, polished, not striated. Nut ovate with a long beak and very short stalk, opaque.—Marshes near the sea on the northern and western coasts. P. VII.

8. Eriophorum *Linn.*

* *Bristles* 4—6, *at length crisped. Spike solitary.*

1. *E. alpinum* (L.); st. triquetrous scabrous, l. very short, spike oblong.—*E. B.* 311 (excl. the leafy shoot). *St.* 10.—A slender elegant plant now lost through the drainage of its place of growth.—Moss of Restenet, Forfar. *Mr. Brown.* P. VI.—S.

** *Bristles very numerous, not crisped.*

† Spike solitary.

2. *E. vaginatum* (L.); *st. triangular above* round below, spike oblong, *nut obovate,* l. long setaceous, upper sheath inflated leafless. *E. B.* 873. *St.* 10.—Bogs and moors. P. V. *Hare's-tail Cotton-grass.*

3. *E. Scheuchzeri* (Hoppe); *st. round,* spike subglobose, *nut oblong* rather narrower below, l. long linear-subulate, upper sheath inflated leafless.—*E. B.* 2387. *St.* 10. *E. capitatum* Sm. —I have not seen native specimens.—By a rivulet on Ben Lawers near perpetual snow, once found. *Mr. G. Don.* P. VIII. S.

†† Spikes more than one.

4. *E. polystachion* (L.); st. round, *peduncles smooth,* l. linear channeled their upper half triangular, nut elliptic-acuminate or obovate triquetrous.—*E. B.* 564. *St.* 10. *E. angustifolium* Sm. —Tall and rather slender. L. triangular through more than half their length. Bristles 3 or 4 times as long as the spikes.—*β. elegans*; st. and l. very slender. *E. gracile* Sm. *E. B.* 2402, not *Koch.*—*γ. elatius* (Koch); st. strong tall, l. 2—3 lines broad the triangular part commencing above the middle, bristles about 3 times as long as the spikes. *E. polystachion* Sm. *E. B.* 563.—

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Bogs. β. in mountainous districts. γ. rather rare, more common in Ireland. P. V. VI.

5. *E. latifolium* (Hoppe); st. triquetrous in its upper half, *peduncles scabrous*, l. linear nearly flat contracted above the middle into a triangular point, *aut oblyriferm* triquetrous.—*E. B.* 2633. *St.* 10. *E. pubescens* Sm.—A tall rather slender plant. L. about 2 lines broad, triquetrous point short. Several of the elegant spikes upon longish stalks which are not downy but scabrous. Bristles 2 or 3 times as long as the spikes.—Bogs, rather rare. P. V. VI. *Common Cotton-grass.*

6. *E. gracile* (Koch); st. somewhat triquetrous, *peduncles downy*, *l. narrowly-linear triquetrous*, *aut* oblong-*linear* triquetrous. —*E. triquetrum* Hoppe, *St.* 10. 2.—A tall slender plant. Spikes about 4, most of them on downy not scabrous stalks. Bristles about twice as long as the spike.—Bogs. Near Hagnaby, Yorkshire. *Mr. Jos. Woods.* White-moor Pond near Guildford. *Mr. Borrer.* P. VI. VII. E.

Tribe III. *Elyneæ.*

9. KORRESIA *Willd.*

1. *K. caricina* (Willd.). The only species.—*E. B.* 1410. *Schk. Car.* Rrr. 161.—St. erect, 6—12 in. high. L. slender shorter than the stem. Spikes 4—5, aggregated at the summit of the stem, 6—8-flowered. There is often an abortive stam. (?) at the base of the nut. Some authors consider each fl. as a separate spike, and the rudiment as representing a second flower. Nees von Esenb. figures 2 scales to the perigone, but I have only seen one.—Moors. Yorkshire. Durham. Perthshire. P. VII.—E. S.

Tribe IV. *Cariceæ.*

10. CAREX *Linn.*[1]

i. Spike simple, solitary. Stigmas 2.—* *Diœcious.*

1. *C. dioica* (L.); *fr. ascending* ovate many-nerved angles rough near the summit, nut roundish-oval, st. and l. smooth, root creeping.—*E. B.* 543. *Schk.* A. 1. *H.* a. 1.—About 6 in. high. Sometimes the male plant produces a single fruit at the base of its spike.—Spongy bogs. P. V. VI.

[1] In the description of the Carices *fruit* must be understood to mean the nut or true capsule covered by the persistent bottleshaped perigone, and it is to be examined when ripe. Excellent figures of these parts for nearly all our species will be found in *Leighton's Fl. of Shropshire.* The *glume* described is always taken from the fertile spike unless it is otherwise stated. *Schk.* refers to the plates of *Schkuhr's Riedgräser*, and *H.* to those of *Hoppe's Caricologia Germanica.*

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2. *C. davalliana* (Sm.); *fr. deflexed* ovate-lanceolate ribbed angles rough near the summit, nut "linear-oblong," st. and margins of the l. rough, root fibrous.—*E. B.* 2123. *Schk.* A. 2. W. 2. *H.* a. 2.—About 6 in. high.—Lansdown near Bath, now lost by drainage. Several other stations have been given, but it is doubtful if they refer to this plant. P. VI. E. S.? I.?

** *Androgynous.*

3. *C. pulicaris* (L.); spike with the upper half barren, *fr.* remote at length *deflexed* oblong narrowed at both ends compressed, nut oblong-obovate, glumes deciduous.—*E. B.* 1051. *Schk.* A. 3. *H.* a. 3.—St. slender, 6—12 in. or more in height, erect, smooth. L. slender, erect, smooth. Fr. dark brown.—Bogs. P. VI.

ii. Spike solitary, simple. Stigmas 3.

4. *C. rupestris* (All.); spike with the upper half barren, *fr. obovate* triquetrous with a very short beak adpressed scarcely longer than the *persistent glumes*, "nut obovate acutely triquetrous."—*E. B. S.* 2814. *H.* b. 4.—St. 3—6 in. high, acutely triangular, rough upwards. *L.* flat *ending in a tortuous* rough slender triangular *point*. Glumes fuscous. Fr. paler. Leighton's fig. appears to have been taken from an immature fruit.—Lofty mountains. Glen Callater and Little Craigindal, Braemar. Inchnadamff, Sutherland. *Mr. Churchill Babington.* P. VII. S.

5. *C. pauciflora* (Lightf.); *spike with* 1 *or* 2 *terminal barren flowers, fr.* 2—4 *lanceolate-subulate teretc* patent or reflexed longer than the deciduous glumes, nut linear-oblong obtusely trigonous. —*E. B.* 2041. *Schk.* A. 4. *H.* b. 1.—St. usually about 5 inches high, slender. L. 2 or 3, much shorter than the stem. Fr. pale yellow, striated.—Bogs. Scotland. Northumberland. P. VI. VII. E. S.

iii. Spikelets androgynous in a compound continuous or interrupted spike.

* *Spikelets sterile at the end, stigmas* 2.—† Root creeping.

6. *C. incurva* (Lightf.); spikelets collected into a roundish head, fr. inflated broadly ovate acuminate-rostrate, beak smooth notched on one side, *nut obovate* compressed, st. smooth about as long as the leaves.—*E. B.* 927. *Schk.* Hh. 95. *H.* a. 5.—Root creeping extensively. St. 2—3 in. high, usually *recurved* so as to bring the large head down to the ground.—A single specimen, gathered on the sands at Scaristra in the isle of Harris, belongs either to this species or to *C. stenophylla* (Wild.) having a compressed (?) and ribbed fr. with a serrulate beak.—Sandy shores of the north. P. VI. S.

7. *C. divisa* (Huds.); spikelets collected into a somewhat ovate head, *fr. plano-convex* ovate many-nerved, *beak acutely bifid with*

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finely serrated edges, nut broadly oblong compressed, glumes with an excurrent rib, lowermost bract foliaceous, *st. roughish at the summit.*—*E. B.* 1096. *Schk.* R. and Vv. 61.—St. slender, a foot high. Fr. nerved upon both sides. Spike often interrupted below. —Marshes near the sea on the eastern coast. P. V. VI.

8. *C. intermedia* (Good.); *spikelets* collected into an oblong interrupted spike *upper and lower* ones *fertile intermediate barren, fr. ovate-lanceolate* nerved *narrowly margined* bifid with serrated edges above, nut (usually abortive) elliptical, *glumes shorter than the fr.* acute the *midrib not reaching the summit,* st. with scabrous angles.—*E. B.* 2042. *Schk.* B. 7. *H.* a. 14.—Height 1—2 feet. Fr. slightly widened at the base of the beak which is deeply divided on one side. Lowermost bract with a slender leafy point. —Marshy meadows. P. V. VI.

9. *C. arenaria* (L.); *spikelets* collected into an oblong interrupted spike *upper barren* lower fertile intermediate barren at the end, *fr. ovate* nerved *winged* and finely serrate *from the middle* to the bifid summit of the beak, nut bluntly ovate, *glumes longer than the fr.* acuminate, st. scabrous above.—*E. B.* 928. *Schk.* B. and Dd. 6. *H.* a. 13.—Height 1 foot. Root creeping extensively and binding loose sands. Lowermost bracts with slender leafy points.—Sandy sea-shores. P. VI.

†† Root fibrous.

10. *C. vulpina* (L.); *spikelets compound* collected into a cylindrical crowded spike, *fr. ovate-acuminate* plano-convex nerved bifid finely serrate above divergent, *nut oval* compressed tipped with a *beak slightly thickened upwards,* glumes mucronate shorter than the fruit, st. acutely triangular with scabrous angles, *bracts setaceous.*—*E. B.* 307. *Schk.* C. 10. *H.* a. 16.—Height 2 feet. St. firm. L. broad. Fr. palish green. Beak of the nut constricted, its base narrower than the base of the style.—Wet places. P. VI.

11. *C. muricata* (L.); spikelets approximate in an oblong spike dense or interrupted below, *fr.* ovate-acuminate plano-convex *obsoletely nerved* bifid *finely serrate* above divergent, *nut oval* compressed its beak extremely short, glumes mucronate shorter than the fruit, *st. smooth with rough angles.*—*E. B.* 1097. C. contigua *H.* a. 10.—Height 1—2 feet. St. slender. L. narrow. Lowermost spikelets not more than their own length distant from each other. Fr. with a broad flat beak with very sharp edges.— Gravelly pastures. P. VI.

12. *C. divulsa* (Good.); *spikelets distant* the upper ones approximate, *fr.* ovate acute plano-convex obsoletely nerved bifid smooth ascending: *beak slightly rough at the edges, nut ovate-oblong* compressed its beak extremely short, glumes mucronate

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shorter than the fruit, st. smooth with rough angles above, bracts short setaceous.—*E. B.* 629. *Schk.* Dd. and Ww. 89. *H.* a. 16. —Height 1—2 feet. More slender than the preceding. Spikelets grayish, usually distant, 1 or 2 of the lowest are occasionally lengthened into a short branch. Fr. with a thick green margin which is slightly rough near the summit. Difficult to characterize, but I believe quite distinct from the preceding.—Moist shady places. P. VI.

13. *C. teretiuscula* (Good.); spike compound oblong, *spikelets densely aggregated, fr. ovate-gibbous* with 3—4 central nerves on the convex side: *beak* bidentate serrulate subtriquetrous *winged on the convex side*, nut turbinate convex on both sides: beak extremely short, style not thickened at the base, st. trigonous and scabrous above with convex faces.—*E. B.* 1065. *Schk.* D. 19. T. 69. *H.* a. 9.—Root forming scattered simple tufts not truly creeping. St. 1—2 feet high, slender.—Boggy meadows, rare. P. VI.

14. *C. paradoxa* (Willd.); *spikes narrowly panicled* lower branches rather distant, *fr. ovate gibbous with numerous short elevated ribs* near its base: *beak* bidentate serrulate *with no wing* on its convex side, nut rhomboidal constricted below convex on both sides without a beak, style slightly enlarged at the base, st. trigonous and scabrous in the upper part with convex faces.—*Schk.* E. 21. *H.* a 12.—Root "densely tufted." St. 1—2 feet high, slender.—In a boggy wood at Ladiston near Mullingar. *Mr. D. Moore.* P. VII. I.

15. *C. paniculata* (L.); *spikes panicled* with elongate diverging branches, *fr.* ovate gibbous *obscurely many-nerved* with a bidentate scabrous triangular beak, *nut ovate obtuse* narrowed below *compressed-triquetrous: beak slightly thickened upwards, st.* triquetrous *with flat faces.*—*E. B.* 1064. *Schk.* D. 20. Ttt. 163. *H.* a. 19.—Root tufted. St. stout, 2—3 feet high. Panicle usually large and spreading but occasionally reduced to a slender compound (or even simple) spike. Bracts all much shorter than the spike.—Bogs. P. VI.

** *Spikelets sterile at their base.*

16. *C. boenninghausiana* (Weihe); *spikelets* several upper ones simple crowded *lower* distant *composed of alternate spiculæ*, fr. lanceolate plano-convex tapering into an almost entire beak strongly *serrated from below the middle*, (nut obovate-elliptical pointed ?) *glumes equalling the fruit*, root tufted, lower bract as long as, or longer than the spike.—*H.* a. 34. *Kunze Suppl. Schk.* 22.—St. 1—2 feet high, triangular with slightly convex faces and rough edges. Rachis straight with 3 rough edges. Glumes ovate, membranous, silvery brown; *midrib* faint, *not reaching the point.* Lower spikelets composed of spiculæ disposed alternately in the

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manner of a spike along the rachis of the spikelet. Bracts, except the lowest, short. L. channeled.—It is doubtful if the male fl. are at the top or bottom of the spikelets, possibly at both.—Near Hertford. *Rev. W. H. Coleman.* P. VI. E.

17. *C. axillaris* (Good.); *spikelets* several upper ones simple crowded *lower* distant *composed of several crowded spiculæ, fr.* ovate-lanceolate plano-convex tapering bifid serrated above, nut obovate with a beak, *glumes shorter than the fruit,* root tufted, lower bract as long as, or longer than the spike.—*E. B.* 993. *H.* a. 33.—St. 1—2 feet high, acutely triangular. Rachis straight with 3 rough angles. Glumes ovate, membranous, brownish, *midrib* often rough, *extending to the point.* Spiculæ of the lower spikelets crowded into the axils of the bracts. Bracts, except the lower one, short. L. flat. Base of the style slightly thickened.—Marshes, rather rare. P. VI.

18. *C. remota* (L.); *spikelets* several *all simple* upper ones crowded lower distant, fr. ovate-acuminate plano-convex bifid at the end serrated above, nut elliptical with a beak, glumes shorter than the fr., root tufted, bracts elongated.—*E. B.* 832. *Schk.* E. 23. *H.* a. 35.—*St.* 1—2 feet high, *trigonous* with convex faces. *Rachis* zigzag, *with 2 rough angles* in its upper part. Glumes oblong, membranous, greenish-white, *midrib* smooth usually *not reaching the point.* Lower spikelets simple. Several of the bracts elongated. L. channeled. Base of the style slightly thickened. —Hooker refers *C. tenella* (Sm.) to this species. I know nothing of that plant. Judging from Smith's account it differs from this by its small spikelets with *a terminal sterile fl. and fr. equally convex on both sides.* Schkuhr himself refers both his *C. gracilis* and *C. tenella* to *C. loliacea* (L.) which has the *lowermost fl. sterile* and ribbed fruit. It should be looked for "in a wood by the Esk, Angusshire."—Damp places. P. VI.

19. *C. elongata* (L.); *spikelets* numerous *oblong approximate,* fr. patent oblong-acuminate plano-convex with many ribs on both sides: beak almost entire with rough edges, *nut linear-oblong* tapering below beak very short style persistent, glumes shorter than the fruit, *bracts none* or *one very short.*—*E. B.* 1920. *Schk.* E. 25. *H.* a. 32.—St. 1—2 feet high, triquetrous. Glumes ovate, dark brown with a green keel and whitish edges, obtuse sometimes apiculate. Upper spikelets crowded, lower lax, the interval between them not exceeding their own length.—Marshes, rare. P. VI. E. I.

20. *C. stellulata* (Good.); *spikelets about 4 roundish rather distant,* fr. patent broadly ovate acuminate plano-convex striated: *beak bifid* with serrated edges, *nut ovate obtuse* tapering below, glumes shorter than the fruit.—*E. B.* 806. *Schk.* C. 14. *H.* a. 28.—St. 6—12 in. high, triquetrous, nearly smooth, lowermost

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spikelet often with a short bract. Glumes ovate, membranous, reddish with a green keel and white edges. Fr. greenish.—Boggy meadows. P.V.VI.

21. *C. curta* (Good.); *spikelets* 4—6 elliptical approximate, *fr. erect ovate acute* plano-convex *stalked faintly striated* slightly notched rough at the edges above, *nut elliptical* beak very short style persistent, glumes ovate shorter than the fruit.—*E. B.* 1386. *Schk.* C. 13. C. canescens *H.* a. 31.—St. a foot high, triquetrous, smooth except at the top. Lowermost spikelet often with a short bract. *Glumes* membranous, *whitish* with a green keel, blunt, apiculate. Fr. whitish.—*β. alpicola* (Wahl.); spikelets short, glumes brown with a white margin. C. Gebhardi *H.* a. 30. not *Schk.*—Bogs, rare. *β.* Alpine situations. Ben Wyvis, Rossshire. P. VI. *β.* VIII.

22. *C. leporina* (L.); *spikelets* 3—4 roundish-elliptical *contiguous*, fr. erect elliptical acuminate plano-convex narrowed below nearly entire at the point with smooth edges, " nut elliptical tipped with the persistent style," glumes ovate nearly as long as the fruit.—*E. B. S.* 2815. C. lagopina *Wahl., H.* a. 24.—St. 4—8 in. high, smooth, triangular. Glumes reddish with the margins paler. Fr. yellow.—On the south side of Loch na Gar. *Dr. Dickie.* P. VIII. S.

23. *C. ovalis* (Good.); *spikelets about* 6 oval contiguous, *fr.* erect *ovate-attenuate* plano-convex narrowed below *bifid* at the point *with membranous margins serrulate* above, nut elliptical with a short cylindrical beak terminating in the persistent style, glumes lanceolate as long as the fruit.—*E. B.* 306. *Schk.* B. 8. C. leporina *H.* a. 22.—St. 1—2 feet high, triangular, smooth or roughish above. Glumes lanceolate, acute, brown with a paler membranous margin. Fr. yellowish.—Marshy meadows. P. VII.

iv. Terminal spike androgynous, sterile fl. at the base. Stigmas 3.

24. *C. Vahlii* (Schk.); spikes 1—4 roundish or oblong contiguous nearly sessile, *fr. obovate triquetrous* scabrous above with a short notched beak *longer than the* ovate *rather acute glumes*, nut obovate triquetrous blunt with a short cylindrical beak, bract scarcely overtopping the spikes, st. triangular rough towards the summit.—*E. B. S.* 2666. *Schk.* Gg. 94. Ppp. 154.—St. 6—12 in. high, erect. Glumes brown or black.—Glen Callater and Glen Phu, Clova. P. VII. S.

25. *C. Buxbaumii* (Wahl.); spikes 3—4 oblong sessile contiguous, the lowest shortly stalked rather distant, *fr. oval* obtuse *compressed* (ultimately *trigonous*) *bidentate* subscabrous above *shorter* at the base of the spike *than the cuspidate glumes, nut* obovate *trigonous* blunt *apiculate*, lower bract foliaceous.—*H.* b. 11.

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Schk. X. and Gg. 76.—St. 1—2 feet high, triquetrous, rough. *Sheaths of the l. connected by netlike filaments.* Glumes nearly black with a green keel prolonged into a cuspidate point. Fr. glaucous-green.—Dr. Boott has shown that this is the true *C. canescens* (L.) but it is surely better not to change the name by which it is universally known.—Island near Toom bridge in Lough Neagh. P. VII. I.

26. *C. atrata* (L.); spikes 3—4 ovate-oblong shortly stalked contiguous ultimately drooping, the lowest rather distant and with a longer stalk, *fr. elliptical-triquetrous with a short terete slightly notched beak* broader but not longer than the acute glumes, *nut elliptical* triquetrous blunt apiculate, lower bract foliaceous. —*E. B.* 2044. *Schk.* X. 77. *H.* b. 8.—St. 1—1½ foot high, triangular, usually smooth. Glumes dark purple with a slender pale midrib. Fr. yellowish.—Alpine rocks. P. VI. VII.—E. S.

v. Terminal spike barren solitary, except in spec. 27, 30, 31, 32, 33, which sometimes have more.

* *Stigmas* 2.

27. *C. Goodenovii* (Gay); barren spike 1 (or 2), fertile 2—4 cylindrical sessile lowermost shortly stalked, lowest bract leafy with rounded auricles, *fr. elliptical lenticular with many nerves* vanishing upwards and a very short entire beak, nut roundish very blunt with a short slender beak.—*E. B.* 1507. *Schk.* Aa. and Bb. 85. *H.* a. 42. C. cæspitosa *Sm., Koch,* &c.—Laxly cæspitose. St. about a foot high, acutely triangular, rough at the top. *L. slender,* flat, sheaths not filamentous. Bracts without sheaths. Fr. greenish, often tinged with purple. Nut rather broader than long. Glumes shorter than the fr., purple with a slender pale green keel.—Specimens from the "table-land above Caness, Glen Isla," given to me by Dr. Greville as a variety of this species, appear to be distinct from it and approach *C. aquatilis,* their lower fertile spikes are narrowed below with lax distant fl. and stalked, *fr.* elliptical *without nerves, nut oblong narrowed below, st. triquetrous rough* towards the top, *l. broad.* Can this be *C. dacica* (Heuffl.) *Bot. Zeitg.* 1838. 247. *Bluff. und Fingerh. Comp. Fl. Germ.* ed. 2. ii. 521.? I am unable to refer it to either of our species.—Of *C. angustifolia* (Sm.) I know nothing; the late Prof. Don referred it here.—Marshes. P. V. VI.

28. *C. Gibsoni* (Bab.); barren spike 1, fertile 2—4 oblong narrowed downwards, lower shortly stalked, bracts leafy, *fr.* about ½ longer than the glume *lanceolate gradually narrowing into a* very short entire *beak,* with many nerves vanishing upwards, *nut broadly obovate* rounded at the end and shortly beaked.—*Ann. Nat. Hist.* xi. 168. t. 5.—St. 6—8 in. high, triquetrous with flat or concave faces, rough at the top. L. flat, slender, slightly rough on the edges and keel. Bracts without sheaths, lowest

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often overtopping the spikes. Spikes lax below. Glumes oblong, blunt, purplish-brown with a broad green band up the midrib; on the barren spike paler, obovate-lanceolate. *Perigone nearly twice as long as the nut,* gradually narrowing from below the middle to the top, pale green. Nut rather longer than broad. Root creeping.—Hebden Bridge, Yorkshire. *Mr. S. Gibson.* P. VI. E.

29. *C. rigida* (Good.); barren spike 1, fertile 2—4 cylindrical lowermost shortly stalked, lowest bract leafy with roundish auricles, *fr.* elliptical lenticular *without nerves* with a very short entire beak, nut roundish blunt with a slender beak.—*E. B.* 2047. C. saxatilis *Schk.* I. and Tt. 40. *H.* a. 40.—St. usually 6—8 in. high, sometimes a foot or more, acutely triangular, rough at the top. *L. broad,* flat. Bracts without sheaths. Fr. greenish with purple spots. Nut rather longer than broad. Glumes about as long as the fr., purple with a green keel. Spikes generally short.—Alpine rocks. P. VI. VII.

30. *C. aquatilis* (Wahl.); barren spikes 1 or more, fertile 3 or 4 elongated narrowed downwards, lower ones stalked, *bracts leafy overtopping the spikes,* fr. elliptical lenticular *without nerves* with a very short entire beak, *nut oblong narrowed below* with a short slender beak, *st. trigonous smooth.*—*E. B. S.* 2758.—St. 1—2 feet high, triangular, the faces convex. L. narrow-linear, *sheaths not filamentous.* Bracts without sheaths. Fr. yellowish-green. Nut less abruptly beaked than in the two preceding. Glumes variable in length and breadth, longer or shorter but always narrower than the fr., oblong-lanceolate, reddish-purple with a pale midrib. Spikes long, slender, usually lax below.—*β. elatior*; 3—4 feet high, glumes oblong blunt shorter than the fruit.—Alpine table-lands of the Clova mountains in flat marshy spots. *β.* In the valley, near the bridge at Clova. P. VII. S.

31. *C. cæspitosa* (L.); barren spikes 1 (rarely 2), fertile 3 or 4 cylindrical all nearly sessile, *lowermost bract slender* rather foliaceous *short, fr.* oblong-elliptical lenticular *with many nerves* and a short entire beak, nut roundish-obovate blunt with a short beak, *sheaths of the l. connected by filamentous network.*—*C. stricta* (Good.) *E. B.* 914. *Schk.* V. 72. *H.* a. 43. not *Lam.*—Densely cæspitose. St. 2—3 feet high, acutely triangular with rough angles. Glumes lanceolate, acute, about as long as the fr. but narrower, dark purple with a green keel. Fr. ranged regularly in 8 or 9 rows.—Gay (*Ann. Sc. Nat.* n. s. xi. 191.) has shown that this is the true plant of Linnæus, and as Lamarck's American *C. stricta* was described previously to that of Goodenough, he has wisely restored the Linnæan name to this plant and named our No. 27. *C. Goodenovii.*—Marshes. P. VI.

32. *C. acuta* (L.); *barren spikes* 1—3, fertile 3 or 4 slender cylindrical-acuminate erect in fruit, *lowermost bract foliaceous*

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often surpassing the stem, *with elongate auricles, fr.* oblong lenticular *nerved* rather biconvex with a short entire beak, nut roundish-obovate with a short slender beak, glumes acute.—*E. B.* 580. *Schk.* Ee. Ff. 92. *H.* a. 44.—St. 2—3 feet high, acutely angular, rough. L. broad and flat, *sheaths* not filamentous. Glumes narrow-lanceolate acute, on the male spikes spathulate-lanceolate, purple with a green keel. Fr. pale. Fertile spikes usually with a few barren fl. at the end, *nodding when in flower.* —Wet places. P. VI.

33. *C. saxatilis* (L.); barren spikes 1 (rarely 2), fertile 2 or 3 ovate obtuse remote lower one stalked, bracts leafy, *fr. elliptical inflated* slightly nerved (without nerves *Sm., Kunth*) narrowed upwards into a *short bifid beak,* "nut roundish mucronate."—*C. pulla* Good. *E. B.* 2045. *Schk.* Cc. 88.—St. 6—8 in. high. L. with a strong triangular point. Glumes dark brown with a pale midrib and point. Fr. at first pale afterwards dark brown. The only specimens that I have had an opportunity of examining belong to the tall form (2 feet high) from Clova and all the fr. are abortive.—Dr. Boott has ascertained from the Linn. and Banks. Herb. that this is the plant of Linnæus, thus confirming the opinion of Smith and Solander which is doubted by Gay.—Wet parts of the higher Scottish mountains. P. VI. S.

** *Stigmas* 3; *fr. glabrous.*

† Fertile spikes short, mostly erect.

34. *C. flava* (L.); fertile spikes roundish-oval subsessile lower one with a nearly included stalk, bracts foliaceous with short sheaths, glumes obtuse, fr. ovate inflated ribbed smooth with an erect or deflexed rough-edged bifid beak, *nut obovate* trigonous *punctate-scabrous, st. bluntly-trigonous smooth.—E. B.* 1294. *Schk.* H. 36. *H.* b. 22.—St. 6—12 in. high. L. broad. *Barren spike cylindrical, obtuse*: glumes obtuse. Fertile spikes usually near together, sometimes distant: glumes with a green midrib slightly rough and often excurrent at the end. Beak of the fr. curved downwards.—*β. Œderi*; spikes very near together, fr. with a short straight beak. C. Œderi *E. B.* 1773. *H.* b. 23.—Wet places. P. V. VI.

[Having heard it stated that *C. Mairii* has been found in Scotland I introduce its characters, although I am unacquainted with any station and have not seen Scottish specimens. For beautiful and authentic French specimens I am indebted to my friend Mr. A. W. Lewis.—*C. Mairii* (Coss. and Germ.!); fertile spikes approximate upper subsessile lower with an included stalk, bracts foliaceous lower with a long sheath, *glumes with a scabrous beak, fr.* ovate-elliptical trigonous *obsoletely nerved gradually narrowed into a setose-ciliated* bifid *beak,* nut obovate bluntly trigonous. *C. and G. Pl. Crit. de Paris,* p. 18. t. 1, 2.]

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35. *C. fulva* (Good.); fertile spikes oblong-oval distant with exserted stalks, *bracts* foliaceous *with elongated sheaths*, glumes acute not mucronate, fr. ovate triquetrous ribbed smooth with a *straight* rough-edged bifid *beak*, *nut* obovate trigonous nearly *smooth*, *st. acutely triangular rough-edged.*—*E. B.* 1295.—St. about a foot high. *Barren spike spindleshaped*, *acute*: glumes obtuse. Lowest bract frequently, but not always, reaching up to the barren spike. Root sometimes creeping.—β. *hornschuchiana*; fertile spikes oblong on longer stalks more distant, fr. more inflated and more strongly ribbed, *st. bluntly triangular smooth* except sometimes near the top, lowest bract longer than its own spike. *C. speirostachya* Sm. *E. B. S.* 2770. C. hornschuchiana *H.* b. 40., *Koch*, *Kunth*, &c. Probably a distinct species.—Boggy places. β. Peaty bogs chiefly on mountains. P. VI.

36. *C. extensa* (Good.); fertile spikes oblong near together subsessile lower one rather distant with a short included stalk, bracts very long foliaceous, *glumes mucronate*, fr. ovate triquetrous ribbed narrowed below with a *straight smooth-edged bifid beak*, *nut oblong-elliptical narrowed at both ends* triangular smooth.—*E. B.* 833. *Schk.* V. Xx. 72. *H.* b. 32.—*St.* usually curved, 8—12 in. high, bluntly triangular, *smooth*. Barren spike nearly sessile, blunt, its glumes blunt. *L. and bracts very narrow*, convolute, long.—Marshes, chiefly near the sea. P. VI.

37. *C. pallescens* (L.); fertile *spikes* ovate or oblong *with exserted stalks* approximate, bracts foliaceous, glumes mucronate, *fr. ovate-oblong* convex on both sides striated *obtuse*: *beak* 0, *nut linear-elliptical* narrowed at both ends trigonous.—*E. B.* 2185. *Schk.* Kk. 99. *H.* b. 44.—St. slender, acutely triangular, rough above, 1—1½ foot high. *Spikes* obtuse, *pale green*, the barren one sessile darker.—Marshy places. P. VI.

38. *C. punctata* (Gaud.); fertile spikes erect cylindrical with slightly exserted peduncles particularly the lowest, bracts with sheaths, glumes ovate shortly awned, *fr.* ovate *tumid obsoletely ribbed pellucidly punctate* with a linear bidentate *smooth beak*, *nut ovate-rhomboidal* attenuated at both ends triangular *rough.*—*H.* b. 37. *Kunze Suppl. Schk.* 6.—St. smooth, 1—2 feet high, slender. Spikes distant or the upper ones approximating; peduncles usually slightly, the lowest often greatly exserted, rough; lowest spike frequently very distant. Glumes pale red with a broad green longitudinal dorsal band. Fr. pale, nut brown. Barren spike with blunt glumes.—Marshy places near the sea. Banks of the Menai near Bangor. Guernsey. P. VI. E.

39. *C. distans* (L.); fertile spikes remote erect oblong, peduncles mostly shorter than the sheaths of the bracts, glumes mucronate, *fr.* ovate triquetrous *equally ribbed* smooth rough at

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the edges of the bifid narrow beak, *nut* triquetrous roughish *oblong-elliptical* attenuated at both ends.—*E. B.* 1234. *Schk.* T. 68. *H.* b. 42.—St. smooth, seldom exceeding a foot high, slender. Spikes distant, short, peduncles quite inclosed in the long sheathing bases of the bracts. Glumes brownish. Fr. greenish-brown. Nut yellowish. Barren spike cylindrical, clavate, with blunt glumes.—Marshy places near the sea, sometimes inland on dry ground. P. V.

40. *C. binervis* (Sm.); fertile spikes remote the upper ones approximating cylindrical their peduncles mostly included the lower elongated with exserted peduncles, bracts with sheathing bases, glumes mucronate, *fr.* ovate triquetrous *with* 2 *principal* green submarginal *ribs on the outer surface,* beak broad bifid rough at the edges, *nut obovate attenuated below* roughish.—*E. B.* 1235. *Schk.* Rrr. 160. *H.* b. 39.—St. triangular, smooth, 1—3 or 4 feet high. Spike often very distinct; peduncles of the upper ones frequently quite included, never much exserted, of the lower often greatly exserted. Glumes dark purple, with a greenish yellow midrib. Fr. brown or deeply tinged with purple, with 2 prominent ribs always green; nut brown. Barren spike with brown glumes.—Dry heaths and moors. P. VI. VII.

41. *C. lævigata* (Sm.); fertile *spikes* remote *drooping cylindrical* their peduncles more or less exserted, bracts with sheathing bases, glumes acute, *fr. ovate-attenuated* striated with a long deeply bifid beak with glabrous edges, *nut subpyriform attenuated below* triangular smooth.—*E. B.* 1387. *Schk.* Bbb. 116. Sss. 162. *H.* b. 38.—St. smooth, 2—3 feet high. Spikes distant, drooping. Glumes often acute on the barren spike, always so on the others, purple with a paler dorsal longitudinal band. Fr. green; nut yellowish. L. broad.—Marshes and wet thickets, rather rare. P. VI.

42. *C. panicea* (L.); *fertile spikes* remote subcylindrical *with distant fl.* on exserted stalks, bracts leafy sheathing, glumes rather acute, *fr. ovate-subglobose inflated* with a short *terete obliquely truncate beak,* nut obovate-oblong bluntly trigonous with a cylindrical beak.—*E. B.* 1505. *Schk.* Ll. 100. *H.* b. 33.—St. 1—2 feet high, erect, smooth. Fertile spikes about 2. Glumes oblong, more or less acute, dark brown with a green keel and membranous pale margins. *Barren spike always erect.* Lowermost bract about as long as its spike, the rest shorter, sheaths close. —Marshy places. P. VI.

43. *C. vaginata* (Tausch!); fertile spikes remote with distant fl. on exserted stalks, bracts sheathing scarcely leafy, glumes bluntish, *fr. ovate triquetrous glabrous* with a short terete *smooth obliquely truncate and emarginate beak, "nut elliptical* triangular *with a beak slightly thickened upwards." H.* b. 17. *Kunze Suppl. Schk.* 15. *C. phæostachya* Sm. *E. B. S.* 2731.—St. 5—6 in.

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high, smooth. Fertile spikes 1—2. "Glumes bluntish, pointless, dark brown." *Bracts with funnelshaped sheaths.*—Koch says "culmus rectangule refractus est ad spicam, quæ flores explicat, explicatione peracta ad sequentem spicam eadem ratione refractus apparet, post anthesin autem toties erectus est."—Dr. Boott refers *C. Meilichoferi* (Sm.) to this species and it is probable that he is correct, although Smith expressly says that the fr. is rough-edged. I have never seen specimens, but judging from the fig. (*E. B.* 2293.) and description it appears not to be the plant of *Schk.* Mmmm. 198. or *H.* b. 52.—Highland mountains. P. VII. S.

44. *C. depauperata* (Good.); *fertile spikes* erect remote *with 3 or 4 fl.* and exserted stalks, bracts sheathing leafy, glumes acute, *fr. large nearly globose* with a long bifid beak with rough edges, nut elliptical trigonous with bluntish angles.—*E. B.* 1098. *Schk.* M. 50.—St. 1—2 feet high, bluntly triangular, smooth. Glumes of the barren spike blunt. Known by its very large and few fr. with numerous ribs. Spikes very distant.—Dry woods, very rare. P. VI. E. S.?

†† Fertile spikes short drooping.

45. *C. capillaris* (L.); *fertile spikes* upon long stalks half included *few-flowered lax, one bract sheathing several flowerstalks,* glumes obtuse, fr. oblong triangular turgid narrowed below terminating in a slender membranous beak, nut obovate triquetrous blunt with a short beak.—*E. B.* 2069. *Schk.* O. 56. *H.* b. 53.—St. very slender, 2—6 in. high, smooth. Peduncles rough, several usually inclosed in one sheath. Glumes short, broad, obtuse, midrib not reaching the summit, shorter than the small smooth brown fruit. Nut pale. Root tufted.—Teesdale and Scottish highlands. P. VI. E. S.

46. *C. rariflora* (Sm.); *fertile spikes* 2 or 3 upon long stalks *oblong few-flowered* lax, *bracts with very short sheaths,* glumes very broad obtuse as long as the fr., fr. oblong attenuated at both ends "with 3 blunt angles and depressed sides" *beak extremely short* entire, nut roundish-oblong "acutely" triquetrous with a very short beak.—*E. B.* 2516.—St. 6—8 in. high, smooth. Root creeping. Peduncles solitary. *Glumes* very broad and blunt, dark brown, midrib pale *terminating in a minute apiculus.* Fr. pale, faintly nerved; nut darker.—Boggy summits of the highland mountains, rare. P. VI. S.

47. *C. limosa* (L.); *fertile spikes* 1 or 2 upon very long stalks *ovate densely-flowered* with occasionally a few *barren fl. at their summit, bracts* auricled *slender* strongly keeled, glumes ovate mucronate, *fr. roundish-obovate compressed strongly ribbed* with a very short entire beak, nut obovate bluntly trigonous with a beak, *l. narrow* linear *complicately-channeled rough at the edges* through-

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out.—*E. B.* 2043. *Schk.* X. 76. *H.* b. 49.—St. a foot high. L. and bracts very slender. Glumes purple, with a green keel, about as long as the pale fr. which is broadest above the middle. Nut pale. Root creeping.—Spongy bogs. P. VI.

48. *C. irrigua* ("Sm." Hartm.); *fertile spikes* 2 or 3 upon long stalks oblong densely-flowered *with* occasionally *a few barren fl. at their base, bracts* auricled foliaceous rather *broad nearly flat,* glumes ovate-lanceolate attenuated acute, *fr. roundish-ovate* compressed *faintly ribbed* with a very short entire beak, nut elliptical triangular with a beak, *l.* linear *flat smooth at the edges* except near the apex.—*H.* b. 48.—St. a foot or more in height. L. and bracts 2 or 3 times as broad as in the preceding. *Glumes wholly purple,* usually longer than the pale fr. which is broadest below the middle. Nut pale. Root creeping.—Spongy bogs. Muckle Moss, Northumb. Terregles, Dumfries.—P. VI. E. S.

49. *C. ustulata* (Wahl.); *fertile spikes* 2 *or* 3 *upon short stalks* ovate densely-flowered, *bracts scarcely foliaceous* or sheathing, glumes ovate acute, *fr.* elliptical compressed *rough-edged with a cloven beak,* nut elliptical triangular on a long stalk, root fibrous. —*E. B.* 2044. *Schk.* Y. 82. *H.* b. 47.—St. 3—4 feet high. L. very short, broad. Glumes dark purple with a slender pale midrib. Fr. dark purple paler below. Nut fuscous. I have seen no specimens.—Ben Lawers. *Mr. G. Don.* P. VII. S.

††† Fertile spikes elongated.

50. *C. strigosa* (Huds.); *fertile spikes* about 4 distant rather drooping *slender* lower ones with exserted stalks, bracts foliaceous sheathing, *fr. oblong-lanceolate* narrowed at both ends triangular *nerved with an* obliquely *truncate mouth,* nut elliptical triangular punctured, l. broad.—*E. B.* 994. *Schk.* N. 53.—St. 2 feet high. Sheaths covering nearly the whole length of the peduncles. Spikes laxly-flowered. Glumes elliptic-lanceolate, diaphanous, greenish down the back.—Groves and thickets, rare. P. V. VI.

51. *C. sylvatica* (Huds.); fertile spikes about 4 distant slightly drooping linear with long half-exserted stalks, bracts foliaceous sheathing, *fr. elliptical* triangular *obscurely nerved* narrowed into a *long cloven* smooth *beak,* nut obovate-elliptical triangular, l. narrower than in the preceding.—*E. B.* 995. *Schk.* Ll. 101. *H.* b. 55.—St. about 2 feet high, smooth. Sheaths scarcely covering half the length of the peduncles. Glumes ovate, acute, diaphanous with a green keel.—Damp woods. P. V.

52. *C. pendula* (Huds.); *fertile spikes* about 5 distant *drooping cylindrical very long* densely-flowered, bracts foliaceous lower ones with sheaths equalling the flowerstalks upper scarcely sheathing, *fr.* elliptical subtriquetrous *tumid with a short trigonous emarginate beak,* nut elliptical narrowed at both ends trian-

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gular.—*E. B.* 2315. *Schk.* Q. 60. *C. Agastachys* Ehrh. *H.* b. 57. *C. maxima* Scop., Hudson's name is the oldest.—St. 3—6 feet high, rough at the angles above. Fertile spikes often 3 or 4 in. long, the upper ones frequently with barren fl. at the summit. Glumes ovate, mucronate, brown with a green keel. Fr. green, ciliated at the mouth.—Damp woods. P. V.

53. *C. Pseudo-cyperus* (L.); fertile spikes about 5 drooping cylindrical densely-flowered upon long stalks, *bracts* foliaceous *scarcely sheathing, glumes setaceous scabrous* dilated at the base, *fr. ovate-lanceolate* ribbed much attenuated into a *deeply bifid beak*, nut elliptical triangular, st. with acute rough angles.—*E. B.* 242. *Schk.* Mm. 102. *H.* b. 56.—St. 2—3 feet high. Fertile spikes 1½—2 in. long.—Damp places, rare. P. VI. E. I.

*** *Stigmas* 3, *fruit downy.*

54. *C. præcox* (Jacq.); *fertile spikes* 1—3 *oblong-ovate* near together sessile, bracts clasping the lowest foliaceous and slightly sheathing, glumes broadly ovate-acuminate, fr. ovate-rhomboidal trigonous with an entire mouth, nut obovate margined below trigonous: base of the style surrounded by a prominent ring.—*E. B.* 1099. *Schk.* F. 27. *H.* b. 24.—Root creeping. St. 3—12 in. high. Lowermost spike sometimes slightly stalked.—Dry places. P. IV. V.

55. *C. pilulifera* (L.); *fertile spikes* about 3 *roundish* near together sessile, *bracts* small *lowest scarcely foliaceous awlshaped not sheathing*, glumes broadly-ovate mucronate, *fr.* stalked *subglobose* with a *short bifid beak, nut subglobose* subtrigonous narrowed below.—*E. B.* 885. *Schk.* I. 39. *H.* b. 20.—St. 6—12 in. long, slender, at length decumbent. *Root fibrous.* Nut nearly black. Base of the style enlarged.—Wet heaths. P. V.

56. *C. tomentosa* (L.); *fertile spikes* 1 or 2 nearly sessile *cylindrical obtuse, lowermost bract foliaceous with a* very short *sheath*, glumes broadly ovate acute, *fr. obovate* subtrigonous scarcely beaked *slightly emarginate, nut obtuse* trigonous narrowed below with a *short beak constricted at its base.*—*E. B.* 2046. *Schk.* F. 28. *H.* b. 28.—*St.* a foot high, with 3 sharp angles, rough upwards, *erect. Root creeping.* Nut pale, its beak slightly swelling upwards. Fr. with copious white down, mouth very broad.—Water-meadows at Merston Measy, Wilts. P. VI. E.

57. *C. humilis* ("Leyss."); *fertile spikes* 2 *or* 3 *remote about* 3-*flowered inclosed in the membranous sheathing leafless bracts, fr.* obovate subtrigonous narrowed below *with an entire oblique mouth,* "nut obovate triangular with a short beak."—*H.* b. 15. *C. clandestina* Good. *E. B.* 2124. *Schk.* K. 43.—St. about 2 in. high, erect, concealed amongst the leaves. Bracts large, wholly membranous, nearly hiding the fertile spikes. L. all radical,

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linear, channeled, rough.—*C. humilis* being much the older name (1761) and used by most authors is restored to this species.—Limestone hills in Wilts and Somerset. P. IV. E.

58. *C. digitata* (L.); *fertile spikes* 2 *or* 3 *distant linear* erect *lax*-flowered, *bracts* membranous sheathing *obliquely truncate lowermost with a setaceous foliaceous point, fr.* obovate triquetrous narrowed below, *with a short nearly entire beak,* "nut elliptic-oblong triangular shortly-stalked and shortly-beaked."—*E. B.* 615. *Schk.* H. 38. *H.* b. 14. St. 6—8 in. high, erect, sheathed at the base leafless, taller than the flat radical leaves. Stalks of the spikes nearly or quite included.—Woods on limestone, rare. P. IV. V. E.

vi. Terminal spikes barren, 2 or more; stigmas 3.

* *Fruit downy.*

59. *C. glauca* (Scop.); *barren spikes* 1 *or more,* fertile 2 or 3 at length drooping cylindrical densely flowered with long stalks, bracts foliaceous scarcely sheathing, *glumes ovate* acute, *fr. obtuse* elliptical slightly downy entire at the small point, *nut roundish-ovate* triangular.—*H.* b. 67. *Schk.* O. P. 57. *C. recurva* Huds. *E. B.* 1506.—Root creeping. St. a foot or more in height. Barren spikes very variable in number. Fertile spikes often with barren fl. at the summit.—*β. micheliana* (Sm.) differs only by having quite blunt glumes and smaller fruit. *E. B.* 2236.—*γ. stictocarpa*; fertile spikes ovate, fr. obovate dotted. *C. stictocarpa* Sm. *E. B. S.* 2772. The name that I have adopted is the older and more generally employed.—Wet places. P. VI.

60. *C. filiformis* (L.); barren spikes 2, *fertile* 3 or 4 remote *erect sessile* oblong, bracts foliaceous lowermost slightly sheathing, glumes oblong-ovate cuspidate and ciliated at the point, *fr.* oblong-ovate narrowed upwards into an *obliquely truncate beak* ending in 2 *lateral points, nut narrowly elliptical* attenuated at both ends triquetrous, l. slender channeled.—*E. B.* 904. *Schk.* K. 45. *H.* b. 31.—St. 2 feet high. L. with filamentous sheaths below.—Boggy meadows. P. V.

61. *C. hirta* (L.); barren spikes 2 or 3, *fertile* 2 or 3 remote erect oblong-*cylindrical stalked, bracts* foliaceous the lower *with long sheaths* nearly equalling the peduncles, glumes elliptic-lanceolate with long slender ciliated points, fr. oblong-ovate narrowed upwards into a *deeply divided beak, nut obovate* narrowed below triquetrous, *l. flat hairy.*—*E. B.* 685. *Schk.* Uu. 108. *H.* b. 58.—St. 1½—2 feet high, leafy. L. and sheaths shaggy, rarely glabrous. Fr. tawny. Occasionally the spikes are compound.—Wet places. P. IV.

** *Fruit glabrous.*

62. *C. hordeiformis* (Wahl.); barren spikes 2, fertile 3 oblong

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remote with short exserted stalks, bracts overtopping the spikes long foliaceous flat sheathing, *fr. large ovate plano-convex scabrous* winged ciliate-serrate narrowed into a long bifid beak, *nut* oblong-obovate *trigonous* with a long slender beak.—*Schk.* Ddd. 121. *C. secalina* Sm. not Willd.—*Fr. very large,* twice as long as the glumes. I have not seen native specimens.—Small valley about three miles west of Panmure, Forfar. *Mr. G. Don.* S.

63. *C. ampullacea* (Good.); fertile spikes 2 or 3 remote cylindrical erect stalked, bracts foliaceous without sheaths, *fr. subglobose inflated with a long narrow bifid beak,* "nut obovate triquetrous," *st. smooth obtusely angled.*—*E. B.* 780. *Schk.* Tt. 107. *H.* b. 65.—St. 1—2 feet high, with rounded faces and 3 slight angles. L. glaucous, channeled.—Very wet bogs. P. VI.

64. *C. vesicaria* (L.); fertile spikes 2 or 3 remote cylindrical, bracts foliaceous without sheaths, *fr. ovate-conical inflated* narrowing gradually into a *subulate bifid beak,* "nut elliptical triquetrous," *st. with acute angles.*—*E. B.* 779. *Schk.* Ss. 106. *H.* b. 64.—St. 2 feet high, with flat faces and 3 strongly marked angles. L. rather broad, green.—Wet bogs. P. V.

65. *C. paludosa* (Good.); *glumes of the barren spikes obtuse, fertile spikes* cylindrical *obtuse,* bracts foliaceous without sheaths, fr. oblong-obovate compressed with a short bifid beak, "nut roundish-obovate triquetrous."—*E. B.* 807. *Schk.* Qq. 103.—St. 2—3 feet high, angles rough. L. broad.—Wet places. P. V.

66. *C. riparia* (Curt.); *glumes of the barren spikes acute, fertile spikes acute* cylindrical, bracts foliaceous without sheaths, fr. oblong-ovate convex on both sides narrowed into a short broad cloven beak, "nut pyriform trigonous."—*E. B.* 579. *Schk.* Rr. 105. *H.* b. 66.—St. 3 feet high, angles rough. L. broader than in the preceding.—Wet places. P. V.

Order XCI. GRAMINEÆ.

Fl. perfect or unisexual, 1, 2 or more seated on a common rachis which is contained within an involucre of 1 or 2 valves (glumes) or rarely wanting, the whole forming a locusta or spikelet. Each fl. of 1 or 2 scales (paleæ) of which the outer or lower is simple and usually keeled, the inner with 2 nerves or keels. Hypogynous scales 2, 3, or none. Stam. hypogynous, 1—6. Anth. versatile, notched at both ends. Ovary 1-celled. Styles 2, rarely 1 or 3.—L. with split sheaths.

Tribe I. *PANICEÆ. Spikelets dorsally compressed,* 1-flowered or with 1 fl. and an inferior rudiment resembling a third glume. Glumes 2, unequal, the lower often very small. Styles elongated. Stigmas feathery.

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1. DIGITARIA. *Spikes fingered.* Spikelets in 2 rows on one side of a flattened rachis, unarmed, 1-flowered with an inferior rudiment. Glumes 2, lower very small, upper 3-nerved. Sterile fl. of one 5—7-nerved palea, resembling the upper glume and equalling the flower.

2. ECHINOCHLOA. Spikes compound, secund in the whole and in each part. Spikelets on one side of a flattened rachis, 2-flowered, inferior fl. rudimentary. *Glumes* 2, lower small, 3-nerved, *upper* as long as the fl. 5-*nerved* mucronate. Outer palea of the sterile fl. resembling and equalling the upper glume.

3. SETARIA. *Spike cylindrical,* compound. *Spikelets surrounded by an involucre of bristles,* 2-flowered, inferior fl. rudimentary. Glumes 2, lower small 3-nerved, upper as long as the fl. many-nerved. Sterile fl. of 1 palea resembling the upper glume.

Tr. II. *PHALARIDEÆ. Spikelets laterally compressed,* 1-flowered, with 1 or 2 or more below resembling the glumes. Styles long. Stigmas filiform, protruded from the summit of the spikelet.

4. PHALARIS. Glumes 2, navicular, carinate, membranaceous, nearly equal, longer than the flower. Paleæ coriaceous, unequal, closely investing the fruit. Rudimentary fl. 1—2, each consisting of a single scale.

5. ANTHOXANTHUM. Glumes 2, unequal, membranous, lower small 1-nerved, upper longer than the fl. 3-nerved. Paleæ scarious. *Stam.* 2. Rudimentary fl. 2, each consisting of a single notched scale awned on the back.

6. HIEROCHLOE. Glumes 2, nearly equal, membranous, 3-nerved, about as long as the flowers. Fl. 3; 2 lower male, 3-androus, upper palea with 2 keels; upper herm., 2-androus, upper palea with 1 keel.

Tr. III. *PHLEINEÆ.* Spikelets laterally compressed, 1-flowered or with a *superior rudiment.* Glumes nearly equal. Styles and stigmas as in Tr. II. Inflorescence a spikelike panicle.

7. PHLEUM. Glumes parallel to the midrib which is prolonged into a seta. Fl. 1. Paleæ 2, membranous, lower 3-nerved obtuse without awns.

8. ALOPECURUS. Glumes membranous, acute. Fl. 1. Palea 1, scarious, 5-nerved, awned on the back, the margins usually connected below. "Styles usually combined."

9. KNAPPIA. *Inflorescence a somewhat* 1-*sided raceme.* Glumes

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not keeled, blunt. Fl. 1. Paleæ 2, scarious, very hairy, obtuse, unequal, without awns.

Tr. IV. *AGROSTIDEÆ*. Spikelets and glumes as in Tr. III. *Stigmas sessile or nearly so*. Inflorescence panicled.

10. GASTRIDIUM. *Glumes* membranous, acute, unarmed, *ventricose* at the base, much longer than the flower. Fl. 1. Paleæ 2, *membranous*; lower truncate or toothed at the end, with or without a dorsal awn.

11. POLYPOGON. *Glumes* scarious, nearly equal, each furnished *with a long seta* from just below the emarginate summit. Paleæ shorter than the glumes, outer usually awned from below the summit.

12. MILIUM. Glumes membranous, nearly equal, *unarmed*. *Paleæ* 2, nearly equal, unarmed, about as long as the glumes, *hardening on the fruit*. Spikelets convex on the back, or slightly dorsally compressed.

13. AGROSTIS. *Glumes* membranous *acute*, unarmed, the upper one smaller. *Paleæ unequal*, scarious, with or without a dorsal awn, shorter than the glumes. Seed free.—In *A. canina* the inner palea is wanting.

14. APERA. Spikelets with the rudiment (pedicel) of a superior floret. Lower glume the lesser, 1-nerved; upper larger, 3-nerved, about as long as the lower palea. Otherwise like *Agrostis*.

[Tr. V. *STIPACEÆ*. Spikelets in an equal panicle, 1-flowered, without any rudiment. Outer palea convolute and hardened upon but not attached to the fruit, the extremity rolled up and jointed to a long awn.]

[15. STIPA. Florets stalked. Paleæ coriaceous, the inner entire. Awn evidently jointed to the palea, kneed and twisted.]

Tr. VI. *ARUNDINEÆ*. Spikelets laterally compressed, 1-flowered, or with a superior rudiment, or many-flowered. *Fl. enveloped in long silky hairs*. Styles and stigmas various. *"Awn not twisted."*

16. ARUNDO. Glumes nearly equal, *the lower* rather the *longer*. Floret 1, with or without the superior rudiment of another reduced to a pedicel. Outer palea awned. Panicle diffuse. Styles short. Stigmas feathery.

17. AMMOPHILA. Glumes nearly equal, *the lower* rather the *shorter*. Floret 1, with a superior rudiment of another. Outer palea with a short awn. *Panicle spikelike*. Styles short. Stigmas feathery.

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18. PHRAGMITES. Glumes unequal, the lower much smaller. *Florets* 2—6, unarmed, *the lower ones imperfect.* Panicle diffuse. Styles elongate. Stigmas plumose.

Tr. VII. *CHLORIDEÆ.* *Spikelets* laterally compressed, 1-flowered in our plants and sometimes with *a superior rudiment,* placed *in* 2 *rows on one side of a flattened rachis.*

19. CYNODON. Spikes fingered, 1-flowered with a superior rudiment. Glumes nearly equal, patent. Paleæ equal, outer boatshaped compressed embracing the inner. Styles long, distinct. Stigmas feathery, protruding below the summit of the floret.

20. SPARTINA. *Spikes upright,* in a raceme, 1-flowered. Glumes unequal, the upper long and acuminate. Paleæ unequal, outer boatshaped compressed retuse. *Styles* elongated, *united* half-way up. *Stigmas filiform,* protruding at the summit of the floret.

Tr. VIII. *SESLERIEÆ.* Spikelets laterally compressed, many-flowered, *without hairs.* Styles 0 or very short. *Stigmas very long,* filiform, protruded *from the summit of the florets.*

21. SESLERIA. Panicle spiked; spikelets sessile, tiled all round. Glumes 2—6-flowered, nearly or quite as long as the spikelet. Outer palea keeled, membranous; with a scarious margin, ending in 3 or 5 points, dorsal rib evanescent.

Tr. IX. *AVENINEÆ.* Spikelets with 2 or more florets (except in *Lagurus*), upper often barren. Glumes as long (or nearly) as the spikelet. Fl. usually surrounded by *stiff hairs. Awn twisted and kneed.*

22. AIRA. Panicle lax. Glumes 2-flowered, with or without the rudiment of a third (which is sometimes perfected in *A. cæspitosa*). *Outer palea with or without very faint lateral nerves,* awned. Awn dorsal, kneed (in *A. cæspitosa* straight). Ovary glabrous. Fr. neither crested " nor furrowed."

23. CORYNEPHORUS. Awn clubshaped, straight, jointed in the middle, the upper portion clavate, a tuft of hairs at the joint. Otherwise like *Aira.*

24. LAGURUS. Panicle spiked. *Glumes* 1-flowered, scarious, *ending in a long fringed seta.* Outer palea ending in 2 long setæ and with a dorsal geniculated twisted awn.

25. TRISETUM. Spikelets crowded. Glumes 2—6-flowered. *Outer palea with faint lateral nerves,* ending in 2 acute teeth,

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awned. Awn dorsal, kneed and twisted. Ovary glabrous. Fr. neither crested nor furrowed.

26. AVENA. Glumes 2- or more-flowered. *Outer palea with lateral nerves,* awned, ending in 2 points. Awn dorsal, kneed and twisted. Ovary hairy at the top. *Fr. crested and furrowed.*

27. ARRHENATHRUM. Glumes 2-flowered with a rudiment, *lower fl. male* with a long dorsal kneed and twisted awn, upper with a short straight awn. Paleæ herbaceous, ending in 2 points. Ovary hairy at the top. Fr. .....

28. HOLCUS. Glumes 2-flowered, lower perfect awnless (or very rarely awned), upper usually male with a dorsal awn. *Paleæ hardening on the fruit.*

29. TRIODIA. Glumes 2—3-flowered. Outer palea rather coriaceous, smooth, rounded on the back, bifid with an intermediate broad point sometimes becoming the base of a kneed awn.

Tr. X. *FESTUCINEÆ.* Spikelets with 2 or more flowers, upper often barren. *Glumes shorter than the lowest flower. Styles very short. Stigmas protruded* from the base of the flower.

30. KŒLERIA. Glumes unequal, upper one with 2 or 3 ribs, shorter than the *compressed* 2—5-flowered spikelet. Outer *palea* nerved, *keeled, acuminate* (or with a straight subapicular seta). Seed loose. Styles terminal.

31. MELICA. Glumes nearly equal, with lateral ribs, nearly as long as the ovate spikelet of 1 or 2 *flowers rounded* on the back and a clublike rudiment of 1 or 2 more. Paleæ hardening on the loose fruit. Styles terminal.

32. MOLINIA. *Glumes* unequal, *without lateral ribs,* shorter than the lanceolate spikelet of 2 or 3 semicylindrical flowers and a subulate rudiment of another. Paleæ hardening on the loose fruit. Styles terminal.

33. CATABROSA. Glumes unequal, very short, rounded or truncate, without lateral ribs, much shorter than the spikelet. Flowers usually 2, rounded on the back, distant. Outer palea membranous, with 3 ribs ending in teeth which do not quite extend to the summit and are connected by the scarious margin. Styles terminal.—The upper glume has 2 very short faint lateral nerves. Awn 0.

34. POA. Glumes rather unequal. *Outer palea with* 3 *or* 5 *nerves,* membranous below, scarious at the tip, *compressed, keeled,* unarmed. Styles terminal.

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35. GLYCERIA. Glumes unequal acute submembranous. *Outer palea with* 5—7 *strong prominent* distinct and parallel *ribs* and a scarious margin, *subcylindrical,* unarmed. Styles terminal.

36. SCLEROCHLOA. Glumes unequal, acute, membranous. *Outer palea with* 5 *faint* but distinct and parallel *nerves,* membranous, *cylindrical* below, unarmed, often keeled at the tip or with a very minute mucro. Styles terminal.

37. BRIZA. Glumes nearly equal, broad, 3-ribbed. Fl. 3—8, densely imbricated in a short distichous spikelet. Outer palea navicular, heartshaped, obtuse, rounded on the back, unarmed. Glumes and paleæ membranous with a scarious margin. Styles terminal. "Fr. free." (*Woods.*)—Outer palea with 7—9 faint nerves.

38. CYNOSURUS. Glumes nearly equal, scarious, with a strong keel, with 1 or more flowers. Outer palea rounded on the back with a terminal seta. *Each spikelet with a pectinated bract* (abortive spicula) *at its base.* Panicle spicate, 1-sided.

39. DACTYLIS. Glumes unequal, herbaceous, many-flowered, the larger keeled. *Outer palea compressed,* keeled, 5-nerved, the dorsal nerve fringed and excurrent just below the summit forming a short seta. *Spikelets crowded, subsecund.*

40. FESTUCA. Glumes unequal, herbaceous, many-flowered. *Outer palea rounded* on the back, very acute, *or with the dorsal nerve excurrent* at or just below the apex (if elongated usually called an awn), lateral nerves slightly converging and vanishing below the apex. Inner palea minutely ciliated on the ribs. *Styles terminal.*—Rachis with acute angles. Sheaths of the leaves divided to the base.

41. BROMUS. Glumes unequal, herbaceous, many-flowered, *lower* 1-*nerved, upper* 3—5-*nerved.* Fl. lanceolate, compressed. Outer palea with a long seta (usually) founded on 3 nerves from below the tip. *Styles* below the summit of the fruit, *lateral.*—Sheaths of the l. divided half-way down. Spikelets broader upwards.

42. SERRAFALCUS. Glumes unequal, herbaceous, many-flowered, *lower* 3—5-*nerved, upper* 7—9-*nerved.* Fl. oblong, turgid. Outer palea with a short seta (usually) founded on 3 nerves from below the tip. *Styles* below the summit of the fruit, *lateral.*—Sheaths of the l. scarcely divided half-way down. Spikelets narrower upwards.

43. BRACHYPODIUM. *Glumes unequal,* many-flowered. *Outer palea* rounded on the back *setigerous at the summit,* lateral nerves slightly converging not vanishing upwards. *Inner*

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palea fringed on the ribs with rigid setæ. Styles terminal. —The unequal glumes alone distinguish this from *Triticum.*

Tr. XI. *HORDEINEÆ.* Spikelets solitary or 2 or 3 together, sessile on opposite sides of a channeled and toothed rachis. Otherwise like Tr. X.

44. TRITICUM. *Glumes* opposite, *nearly equal,* many-flowered, embracing the flowers. Spikelets solitary.

45. LOLIUM. Glume solitary, or the outer very minute, with 3 or more flowers. *Spikelets placed edgewise on the rachis,* solitary.

46. ELYMUS. *Glumes* 2, both on the same side of the spikelet, *without awns or setæ,* with 2 or more perfect flowers. *Spikelets* 2 or 3 together.

47. HORDEUM. *Glumes* 2, terminating in long setæ, *with* 1 *perfect flower* and a stalklike rudiment next the common rachis. Spikelets in threes, often partially barren.

Tr. XII. *ROTTBOELLIINEÆ.* Spikelets of one perfect flower, placed edgewise on the rachis.

48. NARDUS. Spikelets in 2 rows on one side of the rachis, of one flower. Glumes 0. Outer palea keeled, tapering into a subulate point. Stigmas elongate, filiform, protruded at the apex of the flower.

49. LEPTURUS. Spikelets solitary, imbedded alternately on opposite sides of the rachis, of 1 flower and a superior rudiment. Glumes 1—2 opposite to the rachis, cartilaginous, covering the flower. Paleæ scarious. Stigmas feathery.

Tribe I. *Paniceæ.*

1. DIGITARIA *Scop.*

[1. *D. sanguinalis* (Scop.); l. and sheaths hairy, fl. oblong-lanceolate glabrous with downy margins (?).—*E. B.* 849. *R.* (*Agrost.*) 1407.—St. ascending, a foot long.—Not a true native, formerly found in Battersea fields near London. A. VIII.] E.

2. *D. humifusa* (Pers.); l. and sheaths glabrous, fl. elliptical downy with glabrous nerves.—*E. B. S.* 2613.—St. mostly procumbent, 4—8 in. long. Spikes usually 3 or 4, springing from nearly the same point. Spikelets in pairs, one on a longer stalk than the other.—Sandy fields, rare. A. VII. VIII. E.

2. ECHINOCHLOA *Pal. de Beauv.*

*1. *E. Crus-galli* (Beauv.); spikes alternate or opposite, spike-

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lets near together, upper glume and sterile floret awned or mucronate hispid, rachis hispid.—*E. B.* 876. *R.* 1412. *Panicum* Hook. *Oplismenus* Kunth.—A strong coarse grass which is only found occasionally on cultivated land.—Near London. A. VII. E.

3. SETARIA *Pal. de Beauv.*

*1. *S. viridis* (Beauv.); panicles spiked continuous, involucral bristles with erect teeth, paleæ smooth.—*E. B.* 875. *R.* 1467.—Fields near London and Norwich. A. VII. VIII. E.

*2. *S. verticillata* (Beauv.); panicles spiked interrupted below, involucral bristles with reflexed teeth, paleæ smooth.—*E. B.* 874. *R.* 1465.—Fields near London and Norwich. A. VII. VIII. E.

Tribe II. *Phalarideæ.*

4. PHALARIS *Linn.*

*1. *P. canariensis* (L.); panicle ovate resembling a spike, glumes winged on the keel, wing entire, rudimentary fl. 2 half as long as the fertile fl., paleæ pilose.—*E. B.* 1310. *R.* 1492. *Parnell's Grasses*, t. 9.—St. 1—2 feet high, terminating in a compact compound panicle. Glumes large, pale yellow variegated with green lines and remarkably winged at the back.—Scarcely naturalized. A. VII. *Canary-grass.*

2. *P. arundinacea* (L.); panicle upright with spreading branches, fl. clustered, glumes not winged, rudimentary fl. 1 or 2 small hairy—*E. B.* 402. *Par.* 9. Baldingera *R.* 1494.—St. 4—5 feet high, from a creeping root. Panicle 3—4 in. long, erect, with long spreading branches. Glumes keeled although not winged, purplish.—*β. picta*; l. variegated with white lines.—By water. P. VI. VII.

5. ANTHOXANTHUM *Linn.*

1. *A. odoratum* (L.); panicle spiked oblong compound, glumes about as long as the awns.—*E. B.* 647. *R.* 1722—1724. *Par.* 8.—About a foot high.—Very common in pastures. P. V. VI. *Sweet Vernal-grass.*

6. HIEROCHLOE *Gmel.*

1. *H. borealis* (R. and S.); panicle erect, pedicels glabrous, fl. without awns.—*E. B. S.* 2641. *R.* 1728. *Par.* 31.—About a foot high.—In a narrow mountain valley called Glen Kella (or Cally, near the Spittle of Glen Shee. *Mr. Wilson*), Forfarshire. *Mr. G. Don.* P. VII. (V. VI. Sm.) S.

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Tribe III. *Phleineæ.*

7. PHLEUM *Linn.* Cat's-tail-grass.

1. ***P. asperum*** (Jacq.); panicle spiked cylindrical, glumes wedgeshaped truncate swelling upwards rough.—*E. B.* 1077. *St.* 26. 5. *R.* 1487.—St. often branched, clothed with leaves almost up to the panicle. Outer palea entire not awned.—Dry open fields, rare. A. VII. E.

2. ***P. Boehmeri*** (Schrad.); panicle spiked cylindrical, *glumes linear-lanceolate* obliquely truncate mucronate scabrous.—*E. B.* 459. *R.* 1488.—St. leafy below, the upper half naked, accompanied by sterile leafy shoots. Outer palea entire, not awned.—Dry chalky fields, rare. P. VII. E.

3. ***P. Michelii*** (All.); panicle spiked nearly cylindrical, *glumes lanceolate acuminate* ciliated on the back.—*E. B.* 2265. *R.* 1489. *Par.* 7.—St. accompanied by sterile leafy shoots. Glumes ciliated throughout their whole length. Outer palea entire, less than half as long as the glume.—Very rare. On the rocky parts of the Clova mountains. *Mr. G. Don.* P. VII. VIII. S.

4. ***P. arenarium*** (L.); *panicle* spiked *oblong* somewhat *narrowed below*, glumes lanceolate acuminate ciliated on the back.—*E. B.* 222. *R.* 1482. *St.* 29. 1. *Par.* 7.—St. varying greatly in height. Sheaths inflated. Glumes ciliated in the upper half only. Outer palea notched at the summit, ¼ the length of the glumes.—Sandy places near the sea. A. VI.

5. ***P. pratense*** (L.); *panicle* spiked *cylindrical, glumes* oblong *truncate* ciliated on the back bearing a seta of less than half their length.—*E. B.* 1076. *R.* 1483. *Par.* 6.—Root slightly creeping in dry places rather tuberous (*P. nodosum* L.). Panicle 1—5 in. long. Outer palea jagged at the summit.—Meadows and pastures. P. VI. *Timothy-grass.*

6. ***P. commutatum*** (Gaud.); *panicle* spiked *ovate-oblong*, glumes truncate glabrous ciliated on the back bearing a scabrous not ciliated seta of ⅔ of their length, sheath of the upper l. inflated 3 or 4 times as long as its leaf, upper ligule very short and obtuse.—*P. alpinum* Sm. not Linn. *E. B.* 519 (bad). *Par.* 6.—Root somewhat creeping. St. 6—12 in. high. Panicle not exceeding an in. in length.—Well distinguished from the true *P. alpinum* (Linn.!) by Shuttleworth (*Mag. Zool. Bot.* ii. 12.), which has a longer panicle, glumes bearing a ciliated seta, the upper sheath scarcely inflated and only twice as long as its leaf, and the uppermost ligule oblong and acute.—Wet alpine moors at an elevation of 2500—3500 feet. P. VII. S.

8. ALOPECURUS *Linn.* Fox-tail-grass.

1. ***A. pratensis*** (L.); st. erect smooth, *panicle* spiked *cylin-*

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drical obtuse, glumes acute connected below ciliated downy, palea equalling the glumes, *awn projecting more than half its own length beyond the palea*, upper l. half the length of its sheath.—*E. B.* 759. *St.* 8. 1. *R.* 1479. *Par.* 4.—Root fibrous. St. 1—3 feet high. Upper sheath slightly inflated. Ligule short, obtuse. Spike 1—3 in. long, branches 4—6-flowered. Anth. yellow. Styles combined.—Rich pastures. P. IV.—VI.

2. *A. alpinus* (Sm.); st. erect smooth, *panicle oblong* spiked, glumes acute connected below hairy, palea equalling the glumes, *awn projecting ⅓ of its length beyond the palea*, upper l. shorter than its sheath.—*E. B.* 1126. *Par.* 4.—Root somewhat creeping. St. decumbent at the base, then erect, 9—12 in. high. Ligule short, obtuse. Uppermost l. usually (not always) short and broad, ⅓ of the length of its inflated sheath. Awn from about the middle of palea, sometimes wanting. Styles combined. Spike not exceeding an inch long, silky branches 4—6-flowered.—On mountains at an elevation of 2500—3500 feet. Loch na Gar. Ben Lawers. Clova. P. VII. S.

3. *A. geniculatus* (L.); st. ascending bent at the joints smooth, panicle spiked cylindrical, *glumes obtuse* connected below ciliated rather *longer than the palea*, awn from near the base of the palea and projecting half its length beyond it, *anth. linear, upper l. as long as its sheath.*—*E. B.* 1250. *R.* 1477. *Par.* 5.—Root fibrous. St. about a foot long, branching at the lower joints which are generally (in dry places) oval and fleshy. Upper sheath inflated. Ligule oblong. *Palea* when laid open *oblong, obtuse*, slightly notched. Anth. ultimately violet-yellow. Styles mostly combined. Spikes 1—2 in. long.—Wet places. P. VI. VII.

4. *A. fulvus* (Sm.); st. ascending bent at the joints smooth, panicle spiked cylindrical, glumes connected below ciliated rather *shorter than the palea, awn from* just below *the middle of the palea* and scarcely extending beyond it, *anth. short* and broad, upper l. as long as its sheath.—*E. B.* 1467. *Par.* 5.—St. 1—2 feet long, procumbent below. Ligule oblong. Spikes 2—3 in. long. *Anth.* at first white, afterwards orange-coloured.—Wet margins of ponds. P. VI. E. S.

5. *A. bulbosus* (L.); st. erect smooth, panicle spiked cylindrical acuminate, *glumes distinct abruptly acute* downy longer than the palea, awn from near the base of the palea and projecting half its length beyond it.—*E. B.* 1249.—Root fibrous. St. 1 foot high, the lowermost joint forming *an ovate fleshy tuber*. Upper sheath inflated, longer than its leaf. Ligule oblong. Palea when laid open truncate emarginate with a small tooth in the middle. Styles combined. Spikes about an in. long, less decidedly racemose than in our other species, pedicels usually 1-flowered.—Salt marshes in the south, rare. P. VI. E. S.

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6. *A. agrestis* (L.); *st.* erect *scabrous* upwards, *panicle tapering* spiked slender, *glumes acute* connected below *nearly glabrous*, awn from near the base of the palea and projecting half its length beyond it.—*E. B.* 848. *R.* 1473. *Par.* 3.—St. 1—2 feet high, slender. Sheaths roughish, upper one longer than its leaf. Ligule prominent, obtuse. Glumes glabrous but with a row of *fine short ciliæ on the back*. Styles combined.—A very troublesome weed. A. VII. E. S.?

9. KNAPPIA *Sm.*

1. *K. agrostidea* (Sm.). The only species.—*E. B.* 1127. Sturmia minima *Hoppe in St.* 7. 1. Chamagrostis *Koch*. Mibora verna *R.* 1405.—An elegant but very small grass. Root small, fibrous. St. numerous. L. short, rough. Spikes slender, of 5—10 mostly sessile alternate spikelets.—It is very doubtful what ought to be the generic name of this grass; my own opinion is in favour of *Mibora* (Adans.), but I have thought it better to follow Smith.—Sandy maritime pastures, rare. A. III.—V. E.

Tribe IV. *Agrostideæ.*

10. GASTRIDIUM *Pal. de Beauv.*

1. *G. lendigerum* (Gaud.); glumes lanceolate acuminate, outer palea awned, awn rather longer than the glumes.—*E. B.* 1107. *R.* 1418.—St. 3—12 in. high. L. roughish at the edges. Ligule oblong. Panicle close, almost spiked, lobed. Glumes remarkably ventricose at the base. Paleæ very small.—Wet places near the sea, rare. A. VII. E.

11. POLYPOGON *Desf.*

1. *P. monspeliensis* (Desf.); setæ more than twice as long as the rather obtuse glumes.—*E. B.* 1704. *Par.* 11.—Root fibrous. St. 1—1½ foot high. Panicle dense, lobed, pale, silky, often 2 in. long. Glumes linear, hairy. A most beautiful grass.—Salt marshes. A. VI. VII. E. S.

2. *P. littoralis* (Sm.); setæ equalling the acute glumes.—*E. B.* 1251.—Root somewhat creeping. St. about a foot high. Panicle close, lobed, purplish. Glumes linear-lanceolate.—Muddy salt marshes, rare. P. VI. VII. E.

12. MILIUM *Linn.*

1. *M. effusum* (L.); panicle diffuse, paleæ acute, st. smooth, l. lanceolate-linear.—*E. B.* 1106. *R.* 1456. *Par.* 17.—Root fibrous with scions. St. 3—4 feet high. Branches of the panicle long, in distant alternate tufts, in flower horizontal, afterwards deflexed.—Damp shady woods. P. VI.

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13. Agrostis *Linn.* Bent-grass.

1. *A. setacea* (Curt.); panicle close oblong, branches and pedicels scabrous, glumes unequal acute: outer without lateral ribs, outer palea erose at the top 4-ribbed: lateral ribs terminating in short setæ, awn from the base of the palea and twice its length, *l. setaceous, sheaths rough,* ligule oblong acute.—*E. B.* 1188.—Root tufted. L. short, involute, almost capillary. *Branches of the panicle short.* Outer glumes erose at the top; midrib scabrous in its upper half, slightly excurrent at the apex. Inner palea very minute with a tuft of hairs at its base.—Dry heaths in the south-west. P. VII. E.

2. *A. canina* (L.); panicle spreading when in flower otherwise close, branches and pedicels scabrous, glumes unequal acute: outer without lateral ribs, outer palea erose at the top 4-ribbed, awn from below the middle and longer than the palea, lower l. setaceous tufted, stem l. narrow, *sheaths smooth,* ligule oblong acute.—*E. B.* 1856. *Par.* 15.—Root creeping and tufted with trailing leafy shoots. St. decumbent below, then erect. L. narrow; radical involute. *Branches of the panicle long,* slender. Fl. tinged with purple or green. Outer glume *not* erose at the top; midrib scabrous from rather below the middle. Inner palea 0, or very minute. The awn is sometimes very short or rarely absent.—Peaty heaths. P. VII. VIII.

3. *A. vulgaris* (With.); *panicle spreading* during and after flowering, glumes nearly equal: outer toothed on the upper part of the keel, *ligule short* truncate.—*E. B.* 1671. *Par.* 12. 13.—St. long, ascending or decumbent below and rooting at the joints, often producing long prostrate scions. Sheaths mostly smooth. Fl. rarely awned.—*β. pumila*; cæspitose, st. 2—3 in. high, fl. often awned usually infested with smut.—Rather dry places. P. VII.

4. *A. alba* (L.); *panicle compact* after flowering, glumes nearly equal: *outer toothed throughout its keel, ligule* elongate acute.—*E. B.* 1189. *Par.* 13. 14.—St. erect. Sheaths roughish. Panicle spreading when in flower, afterwards close. Florets sometimes though rarely awned.—*β. stolonifera*; with long prostrate scions.—*E. B.* 1532.—*γ. maritima*; st. procumbent, rooting at the joints, panicle small lobed.—Fields, &c. *γ.* sea-sands. P. VII.

14. Apera *Adans.*

1. *A. Spica-venti* (Beauv.); panicle spreading, awn 3 or 4 times as long as the palea, "anth. linear-oblong."—*R.* 1421. *Agrostis* Sm. *E. B.* 951. *Amenagrostis* (Trin.) *Par.* 17.—St. 1—2 feet high. Panicle very light and elegant. Rudiment of the second fl. a small pedicel with a tuft of hair on each side at the base of the inner palea.—Sandy fields, rare. A. VI. VII. E. S.

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Tribe V. *Stipaceæ.*

15. STIPA *Linn.* Feather-grass.

[1. *S. pennata* (L.); awn very long twisted feathery its base glabrous.—*E. B.* 1356.—A beautiful plant with remarkably long awns, common in gardens.—On rocks in Long Sleadale 6 miles north of Kendal, Westm. *Dillenius.* P. VI.] E.

Tribe VI. *Arundineæ.*

16. ARUNDO *Linn.*

1. *A. Calamagrostis* (L.); panicle loose erect, awn very short from the bottom of the notch at the top of the outer palea and not extending beyond it, hairs longer than the paleæ, no rudimentary fl.—*E. B.* 2159.—St. slender, 3—4 feet high.—Wet places, rare. P. VII. E.

2. *A. Epigejos* (L.); panicle rather close lobed, *awn from about the middle* of the outer palea, hairs longer than the paleæ, no rudimentary fl.—*E. B.* 403. *Par.* 16. Calamagrostis, *Hook.*—St. 3—5 feet high.—Damp shady places. P. VII.

3. *A. lapponica* (Wahl.); panicle close, glumes lanceolate acuminate rough on the keel, *outer palea* nearly as long as the glumes *deeply jagged* at the top longer than the hairs, *awn from near the base* of the palea and not overtopping it, rudiment of a second fl. present, *ligule oblong* acute (?).—St. erect, 2—3 feet high. Fl. tinged with purplish-blue. I find the hairs to be scarcely more than half as long as the palea.—Antrim. P. VI. VII. I.

4. *A. stricta* (Schrad.); panicle close, glumes broadly lanceolate acute rough at the keel, outer palea as long as the glumes truncate and minutely jagged at the top longer than the hairs, *awn from a little below the middle* of the palea and not overtopping it, rudiment of a second fl. present, *ligule short abrupt.*—*E. B.* 2160. *Par.* 16.—St. 1—2 feet high. Hairs nearly as long as the palea.—Characters drawn from *Sm.* and *Par.* fig. and descriptions.—Near Forfar, now lost through drainage. P.VI.—S.

17. AMMOPHILA *Host.*

1. *A. arenaria* (Link); panicle cylindrical narrowed upwards, glumes and paleæ linear-lanceolate acute, hairs ½ of the length of the paleæ.—*E. B.* 520. *R.* 1434. *Par.* 8.—St. erect, stiff, 2—3 feet high. L. rigid, involute, acute, glaucous.—It is unfortunate that *Ammophila* should have been universally adopted as the name of this plant, since that denomination was given to a genus

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of Hymenopterous insects by Kirby in 1798.—Sandy sea-shore, binding the shifting sands. P. VII. *Sea-reed. Marram.*

18. PHRAGMITES *Trin.*

1. *P. communis* (Trin.); panicle diffuse, spikelets 3—5-flowered, fl. longer than the glumes.—*E. B.* 401. *R.* 1729. *Par.* 29. —St. 5—6 feet high, erect. Panicle large, purplish. L. flat, broad.—Dr. Bromfield mentions (*Phyt.* i. 146.) a curious variety with prostrate stems 20—40 feet long, which is found on the south coast of the Isle of Wight.—Marshes. P. VIII.

Tribe VII. *Chlorideæ.*

19. CYNODON *Rich.*

1. *C. Dactylon* (Pers.); spikes 3—5 digitate, palea smooth, l. downy beneath, scions prostrate.—*E. B.* 850. *R.* 1404.—Roots creeping. St. with long branched scions, flowering st. 4—6 in. high terminating in a single cluster of spreading many-flowered slender spikes. Spikelets purplish. L. on the barren shoots flat, spreading.—Sandy shores of Devon and Cornwall. P. VIII. E.

20. SPARTINA *Schreb.*

1. *S. stricta* (Roth); l. articulated to their sheaths shorter than the spikes, spikes 2—3, rachis scarcely extending beyond the last spikelet, outer glume hairy.—*E. B.* 880. *R.* 1401.—St. 1—2 feet high. L. narrowing to the base where they easily separate from their sheaths. Spikes pressed close together. A remarkably rigid plant.—Muddy salt marshes. P. VIII. E.

2. *S. alterniflora* (Loisel.); l. continuous with their sheaths as long or longer than the spikes, spikes numerous, rachis produced beyond the spikelets and flexuose, outer glume glabrous. —*E. B. S.* 2812.—St. 2—3 feet high. L. broadest at the base and not separating from their sheaths more easily than at any other part. Spikes pressed close together.—Mud-flats in the river Itchen at Southampton. P. VIII. E.

Tribe VIII. *Sesleriæ.*

21. SESLERIA *Scop.*

1. *S. cærulea* (Scop.); spike ovate slightly 1-sided, outer palea terminating in 4 teeth: the dorsal rib rough with a short excurrent point, l. abrupt with a minute rough point.—*E. B.* 1618. *R.* 1510. *Par.* 27.—Roots tufted. St. 6—12 in. high. Spike about half an in. long, bluish-purple. Styles combined. Stigmas very long, linear, at first combined almost to the summit, afterwards separate.—Mountains. P. IV. V.

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Tribe IX. *Aveneæ.*

22. AIRA *Linn.*

* *Awn straight.* Deschampsia, *Beauv.*

1. *A. cæspitosa* (L.); panicle spreading, l. flat, awn from below the middle of the palea and scarcely extending beyond its truncate jagged summit.—*E. B.* 1453. *R.* 1682—1686. *Par.* 23.—Root tufted. St. 1—3 feet high. L. rigid, roughish, their margins involute when dry. Branches of the panicle rough. Outer palea with 4 nerves in addition to that which terminates in the rough awn. Rudiment of the third fl. often scarcely, if at all, distinguishable, or, in other cases, half the length of the upper fl. and somewhat clavate.—Meadows, thickets, &c. P. VII.

** *Awn bent, twisted at the base.*

2. *A. alpina* (L.); panicle rather close, l. mostly involute, *awn from above the middle of the palea* and scarcely extending beyond its *acute bifid summit.*—*E. B.* 2102. *Par.* 23.—Height 6—12 in. L. narrow, rigid, roughish on the upper surface. Branches of the panicle quite or nearly smooth. Outer palea with 2 nerves on each side of the midrib, deeply bifid and acute, not as figured by *Par.* No rudiment of a third fl. Fl. often viviparous.—Tops of highland mountains. P. VIII. S.

3. *A. flexuosa* (L.); panicle spreading triply forked with wavy branches, l. very narrow subsetaceous, *awn from near the base of the palea* and extending considerably beyond its summit, pedicel of the second fl. less than ½ of its length, ligule truncate.—*E. B.* 1519. *R.* 1678—1679. *Par.* 24.?—St. erect, slender, about a foot high. L. solid, nearly terete. *Upper sheaths rough from above downwards.* Outer palea notched at the summit.—Parnell's fig. (t. 24.) and description lead me to suspect that his plant is the *A. uliginosa* (Weihe) which has l. very narrow but flat or involute not solid and subterete, the pedicel of the second fl. equalling half its length and the ligule oblong attenuated and acute. If so it is a new plant for our flora.—Heathy places. P. VII.

4. *A. caryophyllea* (L.); panicle spreading triply forked, glumes rounded at the base, *awn from below the middle of the palea* and extending considerably beyond its attenuated deeply bifid point.—*E. B.* 812. *R.* 1676. *Par.* 24. *Avena* Koch.—St. 6—12 in. high. L. short and narrow. *Sheaths roughish from below upwards.* Spikelets very small, rounded below, chiefly collected at the ends of the branches.—Dry gravelly places. A. VI.

5. *A. præcox* (L.); *panicle* somewhat *spiked oblong,* glumes scarcely rounded at the base, *awn from* below the middle usually *near the base of the palea* and extending considerably beyond its

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attenuated deeply bifid point.—*E. B.* 1296. *R.* 1675. *Par.* 25. *Avena* Koch.—Height 1—6 in. L. very narrow. Often with difficulty distinguished from the preceding.—Dry and sandy places. A. IV. V.

23. CORYNEPHORUS *Pal. de Beauv.*

1. *C. canescens* (Beauv.); panicle rather dense elongated, glumes longer than the fl. acuminate, awn from near the base of the palea, l. setaceous.—*R.* 1190. *Aira* Sm. *E. B.* 1190.—St. tufted, slender, 6—8 in. high. L. numerous. Panicle spreading when in full bloom. Spikelets variegated with purple and white. Anth. dark purple. Lower portion of the awn dark yellow, straight, cylindrical, longitudinally striated and slightly twisted; upper part clavate, white tinged with purple.—Sandy coasts of Norf., Suff., and Jersey. A. VI. VII. E.

24. LAGURUS *Linn.*

1. *L. ovatus* (L.). The only species.—*E. B.* 1334. *R.* 1415. —St. 4—12 in. high. L. broad, lanceolate. Spikes ovate, soft. —Sandy places in Guernsey. A. VI. VII. O.

25. TRISETUM *Pers.*

1. *T. flavescens* (Beauv.); panicle much branched diffuse equal, glumes very unequal about 3-flowered.—*Par.* 54. Avena *E. B.* 952. *R.* 1694—1696.—St. about a foot high. Radical l. and sheaths hairy. Ligule very short, obtuse. Spikelets yellowish. Upper glume oblong-lanceolate acuminate. Floral axis hairy, hairs short.—Fields. P. VII.

26. AVENA *Linn.*

* *Upper glume* 5—9-*nerved.*

1. *A. fatua* (L.); panicle erect, spikelets about 3-flowered drooping, fl. shorter than the glumes hairy at the base, outer palea bifid at the end.—*E. B.* 2221. *Par.* 27.—Height 3 feet. Fl. with long fulvous hairs at their base by which it may be distinguished from *A. sativa,* the cultivated Oat.—Corn-fields. A. VII. *Wild Oat.*

2. *A. strigosa* (Schreb.); panicle secund, spikelets of about 2 fl. drooping, fl. as long as the glumes, *outer palea ending in* 2 *long straight bristles.*—*E. B.* 1266. *Par.* 26.—Height 3 feet. Very like *A. sativa* but readily distinguished by the bristles at the end of the fl.—Corn-fields. A. VII.

** *Upper glume* 3-*nerved.*

3. *A. pratensis* (L.); panicle erect with simple or slightly divided branches, *fl. erect* 3—6 longer than the glumes, l. scabrous.

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—*E. B.* 1204. *Par.* 52.—Height nearly 2 feet. St. usually nearly round. L. usually short, narrow, acute. Branches of the panicle generally simple bearing only one spikelet.—*β. longifolia* (Par.); l. much longer.—*γ. alpina*; st. often compressed and sheaths carinate, branches of the panicle often bearing several spikelets, spikelet with more numerous fl., inner palea less acute, l. broader. I believe that none of these characters are permanent.—*E. B.* 2141. *Par.* 53.—*A. planiculmis* of Hooker (*E. B. S.* 2684.) appears to me to belong to this species, differing in its greatly compressed st., strongly keeled sheaths and more branched panicle.—Dry pastures and mountainous places. P.VI.

4. *A. pubescens* (L.); panicle erect nearly simple, fl. erect about 3-fl, scarcely longer than the glumes, lower *l. and sheaths hairy.*—*E. B.* 1640. *R.* 1700. *Par.* 53.—Height 1—2 feet.—Chalky and limestone districts. P. VII.

27. Arrhenatherum *Pal. de Beauv.*

1. *A. avenaceum* (Beauv.); l. flat.—*E. B.* 813. *R.* 1715—1717. *Par.* 25.—Height 2—3 feet. Root fibrous. Joints of the st. glabrous "sometimes downy."—*β. nodosum*; base of the st. with swollen knobs, joints downy. *A. bulbosum* Lindl., *Par.* 26. I find this plant preserving its characters on rich as well as barren soil.—Hedges and pastures. P. VI. *Oat-grass.*

28. Holcus *Linn.*

1. *H. lanatus* (L.); upper glume obtuse apiculate, awn smooth except for a short distance from the tip.—*E. B.* 1169. *R.* 1718. *Par.* 21.—Height 1—2 feet. Sheaths downy. Inflorescence panicled, often pinkish. Lower fl. awnless. Awn at length curved like a fish-hook and included within the glumes, quite smooth or slightly rough at the point. Root fibrous.—Meadows and pastures. P. VII.

2. *H. mollis* (L.); upper glume acute, awn rough throughout its whole length.—*E. B.* 1170. *R.* 1721. *Par.* 21, 22.—Height 1—3 feet. Sheaths nearly smooth. Inflorescence not so compact as in the preceding, whitish. Lower fl. awnless. Awn at length bent at an angle, protruding beyond the glumes. Root creeping. Sometimes the lower fl. has an awn, and rarely the upper is perfect. Occasionally the spikelets are much smaller and the plant only 12—18 in. high.—Thickets or open places on a light soil. P. VII.

29. Triodia *R. Br.*

1. *T. decumbens* (Beauv.); panicle racemose, spikelets few oval, fl. about 4 scarcely extending beyond the glumes without awns.—*E. B.* 792. *R.* 1572. *Par.* 30.—St. 6—12 in. high. L. flat. Sheaths rather hairy. Ligule reduced to a tuft of hairs.

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Spikelets few, 1—7. Glumes smooth, coriaceous, hiding the fl.; outer terminating in 3 points, 9-ribbed, hairy at the base.—Mountain pastures. P. VII.

Tribe X. *Festucineæ.*

30. KOELERIA *Pers.*

1. *K. cristata* (Pers.); panicle compact spiked oval interrupted below, outer palea acute 3-ribbed, l. narrow rough at the edges ciliated.—*Aira* Sm. *E. B.* 648. *R.* 1669. *Par.* 19.—Root crowned with the undivided sheaths of the old leaves. St. 6—18 in. high, downy particularly in the upper part. L. rough and ciliated at the edges, otherwise glabrous or together with the sheaths villose. Glumes and paleæ glabrous or downy; glumes minutely toothed at the keel; outer palea minutely toothed on the midrib. Sometimes the l. become convolute when dry. In dry places the l. are much shorter than the st., in damper places elongated and often nearly equalling the stem.—Dry pastures. A large form on damp ledges on Ben Bulben. P. VI. VII.

31. MELICA *Linn.*

1. *M. uniflora* (Retz.); panicle branched slightly drooping, spikelets erect with 1 perfect glabrous fl., l. flat, ligule short obtuse with a slender acuminate lobe on one side.—*E. B.* 1058. *R.* 1576. *Par.* 18.—Shady and rocky woods. P. VI.

2. *M. nutans* (L.); panicle a nearly simple lax secund raceme, spikelets pendulous with 2 perfect glabrous fl., l. flat, ligule short obtuse.—*E. B.* 1059. *R.* 1577. *Par.* 18.—Damp shady woods. P. V. VI.

32. MOLINIA *Schrank.*

1. *M. cærulea* (Moench); panicle erect elongate narrow, spikelets 1—3-fl., outer palea 3- (rarely 5-) nerved awnless, upper part of the st. naked.—*E. B.* 750. *R.* 1606. *Par.* 20.—St. 1—2 feet high. L. long, linear, attenuated.—β. *depauperata*; spikelets 1-fl. few, outer palea often but not constantly 5-nerved. *M. depauperata* Lindl., *Par.* 19.—Wet heaths. β. alpine situations. P. VII. VIII.

33. CATABROSA *Pal. de Beauv.*

1. *C. aquatica* (Presl); panicle equal with half-whorls of patent branches, l. broadly linear obtuse.—*E. B.* 1557. *Par.* 20.—Root creeping. St. long, procumbent or floating below. L. flat, broad. Branches of the panicle springing in threes or fives from alternate sides of the rachis. Spikelets usually 2- (sometimes 3—5-) flowered. Glumes very thin, often tinged with purple. Fl. distant.—β. *minor*; st. 2—3 in. high, spikelets 1-flowered.—Ponds and ditches. β. Wet sands. P. VI. VII.

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34. Poa *Linn.*

* *Flowers webbed at the base.*

1. *P. bulbosa* (L.); panicle close erect, spikelets ovate of 3 or 4 acute fl., outer palea with 3 silky nerves, upper sheath below the middle of the st. much longer than its leaf, uppermost joint concealed, ligule prominent acute.—*E. B.* 1071. *R.* 1619.—Root fibrous. Base of the st. swollen and resembling a bulb. L. with a narrow white serrated margin. The st. soon wither and the bulbs lie loose upon the sand until the autumn, when they again fix themselves.—Sandy sea-shores of the south and east. P. IV. V. E.

2. *P. pratensis* (L.); panicle diffuse, spikelets ovate of 3 or 4 acute fl., *outer palea* with 5 prominent *nerves the dorsal and marginal ones hairy* the intermediate glabrous, *upper sheath* much *longer than its leaf, ligule prominent obtuse.*—*E. B.* 1073. *R.* 1648—1652. *Par.* 31—34.—Root creeping. Very variable in size. St. and sheaths nearly always smooth.—*β. subcærulea*; spikelets broader, l. broad and short, upper l. compressed rounded at the end behind. *E. B.* 1004.—*γ. angustifolia*; spikelets small, l. long slender lower ones involute.—Common. P. VI. VII. *Smooth-stalked Meadow-grass.*

3. *P. trivialis* (L.); panicle diffuse, spikelets ovate of 2 or 3 acute fl., *outer palea* with 5 *nerves the dorsal hairy the others glabrous, upper sheath* much *longer than its leaf, ligule acute* long.—*E. B.* 1072. *R.* 1653—1655. *Par.* 35.—Root tufted. St. 1—2 feet high. Sheaths slightly rough.—*β. parviflora* (Par.); spikelets small 1- or 2-fl., plant slender.—Moist and shady situations. P. VI.

4. *P. nemoralis* (L.); panicle slightly drooping slender, spikelets ovate-lanceolate of 3 or 4 acute fl., *outer palea* with 5 *nerves the dorsal and lateral hairy, upper sheath not longer than its leaf, uppermost joint at about the middle of the st. exposed, ligule very short obtuse.*—*E. B.* 1265. *R.* 1638—1643. *Par.* 36.—Root slightly creeping. St. slender, 1—2 feet high. Sheaths smooth.—*β. angustifolia* (Par.); st. and panicle very slender, l. long and narrow.—*γ. glauca*; st. slender, panicle with long-stalked few-flowered spikelets, plant glaucous.—Shady places. P. VI. VII. *Wood Meadow-grass.*

5. *P. Balfourii* (Par.); panicle erect slender, spikelets ovate of 3 blunt fl., *outer palea* with 5 *nerves the dorsal and marginal ones hairy* intermediate indistinct, *upper sheath* about as long as its leaf, *upper two-thirds of the st. without joints, ligule prominent obtuse.*—*Par.* 66. *Ann. Nat. Hist.* x. t. 5.—"Root creeping." St. 3—15 in. high, *joints* about 3, *concealed* by the sheaths, *the uppermost within the lower third of the stem.* Lower fl. as long

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as the larger glume.—Summits of mountains. Perth and Forfar shires. P. VII. S.

6. *P. compressa* (L.); panicle slightly unilateral spreading (when in fl. otherwise close), spikelets ovate or oblong-ovate, fl. 5—7 obtuse *slightly webbed* at the base, *upper palea with* 3 *hairy nerves*, upper sheath about as long as its leaf, *ligule short* obtuse. —*E. B.* 365. *Par.* 37.—Root creeping. *St.* decumbent at the base, then erect, very much *compressed*, 1—1½ foot high. *Uppermost joint at about the middle of the stem.*—Dry situations. P. VII.

** *Flowers not webbed.*

7. *P. polynoda* (Par.); panicle erect ovate-lanceolate, spikelets ovate or ovate-lanceolate, *fl.* 4—5 *obtuse not webbed, outer palea with* 5 *nerves dorsal and marginal ones hairy*, upper sheath not longer than its leaf, *uppermost joint above the middle of the st., ligule short obtuse.*—*Par.* 39.—Root creeping. *St.* decumbent at the base afterwards erect, compressed, 1—1½ foot high. Joints 7 or 8, *second* at about the middle of the stem. L. acute. Panicle with short branches. Lowest fl. not longer than the larger glume.—Dry stony soil. Edinburgh. P. VI. VII. S.

8. *P. Parnellii*; panicle erect large rather close oblong, spikelets ovate, *fl.* 2 *or* 3 *acute* not webbed, *outer palea with* 5 *nerves dorsal and marginal hairy, upper sheath longer than its leaf, upper joint at about the middle of the stem exposed, ligule very short* obtuse. —St. ascending, 1 foot or more high, compressed. Joints 5 or 6, the uppermost not above the middle. Very different in appearance although closely allied in characters to the preceding, but in my opinion truly distinct. I name it in compliment to Dr. R. Parnell, the author of a valuable work on Scottish Grasses, who first pointed out to me its claims to distinction.—High-force in Teesdale. P. VII. E.

9. *P. cæsia* (Sm.); panicle erect slender, spikelets ovate of 3 or 4 acute fl., *outer palea* with 5 *nerves the dorsal and marginal hairy, upper sheath not longer than its leaf, uppermost joint near to the base of the st. concealed, ligule short obtuse.*—*Par.* 40.— Root fibrous. St. 6—12 in. high. The *lower fl. longer than the* large *glume*. The want of any web and the acute fl. are the only distinctions between this and *P. Balfourii*. I consider it quite distinct from *P. nemoralis*.—Mountains. P. VII. E. S.

10. *P. montana* (Par.); panicle erect close slender, spikelets few lanceolate-ovate of 2 or 3 fl., *outer palea with* 5 *nerves* the dorsal and marginal hairy, upper sheath not longer than its leaf, *uppermost joint at about the middle of the stem, ligule prominent* obtuse.—*Par.* 40.—Root creeping. St. 12—18 in. high. Joints 4 or 5, highest rather below than above the middle. In my rather imperfect specimen the upper joint is exposed. Panicle

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with long 1—2 fl. branches. Lowest fl. not longer than the larger glume. *P. nemoralis ε. montana* (Koch) I believe to be a different plant.—Ben Lawers at an elevation of 3600 feet. *Dr. Greville.* P. VI. S.

11. *P. laxa* (Hænke); "panicle slender slightly drooping, spikelets oblong-ovate of 3 fl., *outer palea with* 3 *hairy nerves,* upper sheath longer than its *leaf* which is *flat and taper-pointed,* uppermost joint generally concealed, ligule long acute."—*E. B.* 1123. *Par.* 38.—Root fibrous. I have not seen native specimens.—Ben Nevis at an elevation of more than 4000 feet. P. VII. S.

12. *P. alpina* (L.); panicle close erect, spikelets ovate of 3 or 4 acute fl., *outer palea with* 3 *hairy nerves, upper sheath longer than its leaf which is folded and rounded behind the summit,* uppermost joint exposed, ligule "long pointed."—*E. B.* 1003. *Par.* 37.—Root fibrous, tufted. St. 6—12 in. high. Fl. often viviparous.—Lofty mountains. P. V.—VII.

13. *P. annua* (L.); panicle spreading erect with a triangular outline, spikelets ovate-oblong of 5 or 6 fl., *outer palea with* 5 *nerves all* more or less silky, upper sheath longer than its leaf, ligule oblong acute.—*E. B.* 1141. *R.* 1621. *Par.* 40, 41.—Root fibrous. St. ascending or procumbent. L. flaccid, often wavy, broad. Branches of the panicle patent or divaricated.—*β. supina*; outer palea glabrous or with very few hairs on the midrib, branches of the panicle erecto-patent, l. narrow.—Very common. A. III.—X.

35. Glyceria *R. Br.*

1. *G. aquatica* (Sm.); panicle erect repeatedly branched spreading, "rachis semiterete," branches scabrous, spikelets linear-oblong of 5—10 fl., outer palea obtuse, l. smooth with slightly compressed sheaths.—*E. B.* 1315. *Par.* 44.—Root creeping. St. 3—6 feet high, smooth, slightly compressed. Sheaths very long. L. long, rough on the edges and keel. Ligule short. Panicle large. Branches angular, slender, branched. Outer palea with the central nerve extending to the summit.—*G. remota* (Fries) having a terete rachis, smooth branches to the panicle, 4—5-flowered spikelets, outer palea 3-toothed, sheaths terete and l. scabrous, will probably be found in Britain.—Watery places. P. VII.

2. *G. fluitans* (R. Br.); panicle subsecund slightly branched very long, rachis semiterete, branches roughish divaricated whilst in flower, spikelets linear of 7—12 fl., outer palea apiculate, sheaths compressed.—*E. B.* 1520. *R.* 1615. *Par.* 45.—St. ascending, rooting below, or floating. Ligule elongate. Panicle remarkably elongated. Branches scarcely divided. Outer palea blunt with a triangular central point, middle nerve not reaching the top.—Stagnant water. P. VI.—IX.

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1523. *Par.* 29.—A coarse well-known grass. Panicle usually with long spreading or divaricated branches each bearing an ovate cluster of spikelets, sometimes the branches are wanting, and then the whole inflorescence consists of one of these clusters.—Meadows. P. VI. VII. *Cock's-foot-grass.*

40. FESTUCA *Linn.*

1. *F. uniglumis* (Sol.); raceme 2-ranked secund, lower glume extremely minute, fl. compressed keeled shorter than their awns. —*E. B.* 1430. *R.* 1526, 1527.—St. 6—12 in. high, erect, leafy nearly to the top. Raceme close. Lower glume scarcely distinguishable.—Sandy sea-shores. A. VI. E. I.

2. *F. bromoides* (L.); panicle secund contracted, glumes very unequal, *fl. terete* shorter than their awns scabrous.—*E. B.* 1411. *Par.* 54.—St. 6—18 in. high, more or less leafy. Lower glume always shorter than the upper, often very small.—*β. nana* (Par.); smaller, st. leafy quite up to the panicle which more resembles a spike. *Par.* 55. *F. Myurus* Sm., Hook., &c. *E. B.* 1412. not of *Linn.* which has strongly ciliated paleæ.—Dry waste places. A.? VI. VII.

3. *F. ovina* (L.); panicle close subsecund, spikelets of about 6 fl. mostly with awns of half their length, l. involute-setaceous, ligule bilobed, *root fibrous* cæspitose.—*E. B.* 585. *Par.* 56, 57. —Very variable. L. short, slightly curved, tufted. Root cæspitose, not truly creeping. Fl. with short awns, glabrous, or glumes and outer paleæ hairy.—*β. vivipara*; spikelet converted into a leafy shoot. *E. B.* 1355.—*γ. tenuifolia*; l. very long setaceous, fl. without awns, sometimes viviparous.—*δ. duriuscula*; l. less involute, those of the stem nearly flat.—Dry hilly pastures. *β.* and *γ.* on mountains. P. VI. *Sheep's Fescue-grass.*

4. *F. rubra* (L.); panicle close subsecund, spikelets of about 6 awned fl., l. involute-setaceous, stem l. flat, ligule bilobed, *root stoloniferous*, suckers terminating in erect shoots with distichous leaves.—*E. B.* 2056. *R.* 1557. F. duriuscula *Par.* 58, 59, 60.—Root truly creeping. Fl. with short awns longer than those of *F. ovina*, glabrous or hairy. L. short, nearly straight. *β. Sabulicola*; l. very long slender, fl. villose large.—Common in dry sandy places. P. VI.

5. *F. sylvatica* (Vill.); panicle erect diffuse much-branched: branches rough, spikelets of 3—5 *awnless acute fl.*, outer palea scabrous *with* 3 *prominent ribs, dorsal rib serrated throughout*, l. lanceolate-linear with scabrous margins, root tufted.—*R.* 1562. Poa *Par.* 44. F. Calamaria (Sm.) *E. B.* 1005.—Root scarcely creeping. St. 2—4 feet high, covered at the base with imbricated broad acute leafless sheaths. L. very long, broad, roughish on both sides, the uppermost l. smaller than the others. Outer palea very acute, the midrib extending to the apex (not reaching

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it, *Par.*). Ovary pilose at the top.—β. *decidua* (Sm.); l. narrower, fl. about 2. *E. B.* 2266.—Woods in mountainous districts. P. VII.

6. *F. gigantea* (Vill.); panicle drooping branched, spikelets of about 5 *awned fl., outer palea 5-ribbed, the dorsal rib nearly smooth* not extending to the apex but *terminating in a scabrous awn twice as long as the palea*, l. linear-lanceolate.—*E. B.* 1820. Bucetum *Par.* 47.—St. 3—4 feet high. L. very long, broad, roughish on both sides, except near the base on the under side. Ligule short, unequal, auricled. Outer palea roughish, membranous, often bifid at the apex, thus scarcely agreeing with the genus. Top of the ovary glabrous. Styles terminal.—β. *triflora* (Sm.); panicle smaller and more erect, spikelets scattered of about 3 flowers. *E. B.* 1918.—Moist woods and thickets, mostly near the sea. P. VII.

7. *F. elatior* (L.); panicle patent branched or spiked and dichotomous, spikelets of 5—10 fl., *outer palea 5-ribbed, the dorsal rib terminating at or just below the apex or ending in a very short awn*, l. linear-lanceolate.—*Par.* 45, 46, 47.—Extremely variable, but I am unable to separate its forms as species by any permanent character; often on the same specimen the midrib extends to the end of the palea without an awn, or does not quite reach the end and is awnless or has a very short awn. The spiked raceme with sessile alternate spikelets of *F. loliacea* Huds. (*E. B.* 1821.) is connected by numerous intermediate forms with *F. pratensis* Huds. (*E. B.* 1592.), which has a nearly simple panicle, and *F. elatior* Sm. *F. arundinacea* Schreb., Koch (*E. B.* 1593.), in which the panicle is very compound. In all of them the outer palea is obtuse or acute according as the midrib is or is not attached up to the summit. Wet meadows and pastures. P. VI. VII.

41. Bromus *Linn.*

1. *B. erectus* (Huds.); panicle erect, spikelets lanceolate, fl. remote subcylindrical, *outer palea indistinctly 7-nerved* ½ *longer than the smaller glume* and longer than its awn, root l. very narrow ciliated.—*E. B.* 471. *R.* 1604. *Par.* 51.—St. 2—3 feet high, erect. Upper l. broader than the others, sheaths somewhat hairy, the hairs pointing upwards.—β. *villosus* (Leight.); outer palea hairy.—On dry sandy and chalky soil. P. VI. VII.

2. *B. asper* (L.); panicle drooping, peduncles long slightly branched, spikelets lanceolate, fl. remote linear-lanceolate, *outer palea hairy 5-ribbed* twice as long as the smaller glume and longer than its awn, *l. broad* hairy.—*E. B.* 1172. *R.* 1603. *Par.* 51.—St. 4—5 feet high. L. broad, flat, the lower ones broadest, sheaths with hairs pointing downwards.—Damp woods and thickets. A. or B. VII.

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3. *B. sterilis* (L.); panicle drooping, peduncles long slightly branched, spikelets lanceolate, fl. remote linear-lanceolate, *outer palea glabrous shorter than its awn with 7 distinct equidistant ribs*, l. pubescent.—*E. B.* 1030. *R.* 1583. *Par.* 50.—Height 1—2 feet. L. broad, flat.—Waste places. A. VI.

4. *B. madritensis* (L.); *panicle erect* scarcely branched, *peduncles short*, spikelets lanceolate, fl. linear remote subcylindrical, *outer palea* 7-ribbed *twice as long as the smaller glume and about as long as its awn.*—*E. B.* 1006. *R.* 1584. *Par.* 50. *B. diandrus* Curt.—St. 6—12 in. high, glabrous. Rachis and pedicels scabrous. Remarkable for its erect panicle.—*β. rigidus* (Bab.); panicle compact, pedicels very short, upper part of the st., pedicels, rachis and glumes pubescent. *B. rigidus* (Roth) *R.* 1586.—Dry sandy places, rare. *β.* Channel Islands. A. VI. VII. E. S.

5. *B. maximus* (Desf. ?); *panicle erect lax at length nodding* slightly branched, peduncles elongated after flowering, spikelets lanceolate downy, *outer palea* 7-ribbed about *half as long as its awn.*——*E. B. S.* 2820.—Height 1—2 feet. A most beautiful grass.—Probably it is *B. Gussonii* (Parl.) and perhaps distinct from the original *B. maximus* which I have not seen.—Sandy places. Channel Islands. A. VII. O.

42. SERRAFALCUS *Parlatore.*

1. *S. secalinus*; panicle loose drooping in fr. slightly compound, simple peduncles about equalling the oblong glabrous spikelets, fl. at first loosely imbricated afterwards distinct about as long as the straight awn, outer palea not overlapping the next fl., l. hairy with nearly smooth sheaths.—Bromus *E. B.* 1171. *Par.* 49.—In fr. the fl. are quite separate and the spikelets pendulous. Summit of the larger glume half-way between its base and the summit of the second fl. on the same side. Outer palea not twice as long as broad, longer than the inner.—*β. velutinus* (Koch); panicle nearly simple, fl. larger downy. *B. velutinus* Sm. *E. B.* 1884. I follow Koch in considering this to be a var. of *S. secalinus.*—Corn-fields. *β.* Between Edinburgh and Newhaven. *Sm.* A. VI. VII.

2. *S. commutatus*; panicle loose slightly drooping compound, simple peduncles equalling or longer than the oblong-lanceolate glabrous spikelets, fl. loosely imbricated about as long as the straight awn, l. and sheaths hairy.—Bromus *Schrad. B. pratensis* Sm. *E. B.* 920. *B. arvensis* Par. 49.—Outer palea only slightly overlapping that of the next fl. at the base when in fruit. *Summit of the larger glume half-way between its base and the summit of the second fl. on the same side.* Outer palea twice as long as broad, longer than the inner.—Common. A. VI. VII.

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[The true *B. arvensis* (Linn.) has 2 prominent ribs on each side and towards the margin of the outer palea, and, according to Koch, the inner palea always about as long as the outer. Its awn also is rather longer. It is said to have occurred on the Southampton and Durham coast, but is probably not a true native. See Mr. Watson's valuable paper. *Lond. Journ. Bot.* i. 82.]

3. *S. mollis* (Parl.); panicle close erect compound or simple, spikelets ovate somewhat compressed pubescent, fl. closely imbricated about as long as the straight awn, *midrib of the glumes and paleæ not scabrous*, l. and sheaths hairy or downy.—Bromus *E. B.* 1078. *Par.* 48.—*Summit of the larger glume half-way between its base and the summit of the third fl.* on the same side. Outer palea longer than the inner. Simple peduncles not longer than the spikelets.—*β. velutinus*; panicle quite simple, peduncles very short, spikelets and l. densely pubescent.—Common. *β.* Sandy ground in Devon and Cornwall. A. V. VI.

4. *S. racemosus* (Parl.); panicle close or elongated erect usually simple, spikelets ovate somewhat compressed glabrous, fl. closely imbricated about as long as the straight awn, *midrib of the glumes and paleæ scabrous towards the top*, l. and sheaths slightly hairy.—Bromus *E. B.* 1079. *Par.* 48.—Summit of the larger glume half-way between its base and the summit of the third fl. on the same side. Simple peduncles not longer than the spikelets. Outer palea longer than the inner.—*β. arenarius*; panicle quite simple, peduncles very short.—See Dr. Parnell's account of these four species (*Scot. Gr.* p. 110—116) and Mr. Watson's above-mentioned paper.—Common. *β.* Sandy ground in the south. A. VI.

[5. *S. squarrosus*; "panicle drooping, peduncles simple, spikelets ovate-lanceolate subcompressed, fl. nearly glabrous imbricated compressed, awn divaricating, l. pubescent." *Hooker.*—*E. B.* 1885.—Said to have been found in Somerset and Sussex, probably introduced with corn seed. A. VI. VII.]

43. BRACHYPODIUM *Pal. de Beauv.*

1. *B. sylvaticum* (R. and S.) spike drooping, spikelets (at first) terete alternate distichous, *awns* of the upper fl. *longer than their paleæ*, l. flat linear-lanceolate, *root fibrous.*—*E. B.* 729.—St. usually solitary or 2 or 3 from the same root, erect, 1—2 feet high. Sheaths and inner side of the l. hairy. Ligule short, blunt, notched or torn. Paleæ hairy.—Woods and hedges. P. VII. E. I. ?

2. *B. pinnatum* (Beauv.); spike erect, spikelets (at first) terete alternate distichous, *awns* of the upper fl. *shorter than their paleæ*, l. flat linear-lanceolate, *root creeping.*—*E. B.* 730. *B. gracile R.* 1374.—St. several, erect, 1—2 feet high. Paleæ scabrous or

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hairy.—The l. are sometimes (*β. cæspitosum*) very narrow and involute and the st. very numerous. Is this a distinct species, the *B. cæspitosum* (R. and S.) *R.* 1377. ? the ligule is said to differ by being truncate.—On dry limestone soil. *β.* near Bath. P. VII.

Tribe XI. *Hordeineæ.*

44. Triticum *Linn.*

1. *T. caninum* (Huds.); spikelets 4—5-flowered, glumes 3-ribbed with a short terminal seta, outer palea 5-ribbed shorter than its rough awn, *axis* and edges of the rachis *hispid*, l. flat rough on both sides, *root fibrous.*—*E. B.* 1372. *Par.* 62. Agropyrum *R.* 1318.—Banks. P. VII.

2. *T. repens* (L.); spikelets 4—8-flowered, *glumes acute* 5—7-ribbed, outer palea acute, *axis scabrous*, rachis with rough angles, l. flat roughish or hairy above, *root creeping.*—*E. B.* 909. *Par.* 62. *R.* 1384—1388.—Hairs or points on the inner surface of the l. "in a single row upon each rib." The outer palea often has an awn which is never more than half its own length. Rachis glabrous or downy but always with small ascending rigid bristles on its angles.—*β. littorale* (Bab.); spike contracted distichous, rachis quite smooth and glabrous, fl. with short awns. *R.* 1390.—Common. *β.* Jersey. P. VII. *Couch-grass.*

3. *T. junceum* (L.); spikelets 4—6-flowered, *glumes obtuse* 6—11-ribbed, outer palea obtuse, axis smooth or slightly downy, *rachis smooth, l.* involute *finely and closely downy above,* root creeping.—*E. B.* 814. *R.* 1394. *Par.* 63.—Spikelets distant. Rachis easily separating at the joints.—*β.*? *scabrum*; spikelets much nearer together, axis downy, rachis slightly rough at the angles, l. scabrous above with very numerous acute points. Probably a distinct species.—Sandy sea-shores. *β.* Guernsey. *Mr. W. W. Newbould.*

4. *T. cristatum* (Schreb.); *spikelets* 4—5-flowered *closely imbricated,* glumes with a terminal awn, outer palea with an awn about as long as itself, rachis and axis slightly downy, l. hairy above, *st. rough.*—*E. B.* 2267. *R.* 1382. *Par.* 61.—Known from our other species by its short closely imbricated spike.—"On steep banks and rocks by the sea-side between Arbroath and Montrose." *Mr. G. Don.* Now supposed to be lost. P. VII. S.

45. Lolium *Linn.*

1. *L. perenne* (L.); spikelets 6—8-flowered longer than the glume, outer palea usually awnless, *root perennial producing leafy barren shoots.*—*E. B.* 315. *R.* 1346. *Par.* 65.—St. 1—1½ foot high, usually bent at the lower joints. Whole plant rather

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dark green.—β. *aristatum*; outer palea with a long awn.—γ. *tenue*; spikelets few-flowered, l. slender. L. *tenue* L.—Sometimes the spikelets become converted into branches, occasionally the rachis is so much shortened as to form a broad ovate close spike. —Common. P. VI. *Rye-grass.*

*2. *L. multiflorum* (Lam.); spikelets 9—14-flowered longer than the glume, outer palea with a long awn, *root annual without barren shoots.*—*R.* 1345. L. perenne ε. italicum *Par.* 65.—*St. numerous, straight, in close tufts,* 1½—3 feet high. Number of fl. variable. Whole plant, especially the spikelets, paler in colour than the preceding. Ligule short, abrupt.—In cultivated fields. A. VI. *Italian Rye-grass.* E. S.

3. *L. temulentum* (L.); *spikelets* about 6-flowered *equalling or shorter than the glume,* outer palea as long as its awn.—*E. B.* 1124.—St. erect. Root without barren shoots. Ligule short. —β. *arvense*; fl. 4—5, without or with short awns. *L. arvense* With. *E. B.* 1125.—Cultivated fields. A. VI.—VIII. *Darnel.*

46. Elymus *Linn.*

1. *E. arenarius* (L.); spike upright close, rachis flat not winged, glumes lanceolate downy not longer than the spikelets. —*E. B.* 1672. *R.* 1360, 1361. *Par.* 64.—Closely resembling *Ammophila arenaria,* but readily disfinguished by its structure and by the broad l. and short ligule. St. 3—4 feet high.—Sandy sea-shores. P. VII.

2. *E. geniculatus* (Curt.); spike lax bent downwards, rachis winged, glumes awlshaped glabrous longer than the spikelets.— *E. B.* 1586.—St. 3—4 feet high. Spike 1—2 feet long, remarkably bent downwards at the second or third spikelet. I have never seen a specimen.—In a salt marsh near Gravesend. *Mr. Dickson.* P. VII. E.

[*Ægilops ovata* (L.) has occurred accidentally on the coast of Fife.]

47. Hordeum *Linn.* Barley.

1. *H. sylvaticum* (Huds.); *glumes all awlshaped* rough, lateral fl. perfect, intermediate fl. often barren, outer palea with an awn of twice its length.—*Elymus europæus* Linn., Sm., *E. B.* 1317. *R.* 1359.—Closely resembling *H. pratense.* Intermediate fl., if barren, with shorter glumes which have their edges involute so as to appear setaceous. The spikelets have a second fl. occasionally. —Woods and thickets on a calcareous soil. P. VII. VIII. E.

2. *H. pratense* (L.); *glumes all setaceous rough,* lateral fl. imperfect, outer palea of the intermediate fertile fl. with an awn of about its own length.—*E. B.* 409. *R.* 1363. *Par.* 11.—Glumes of the lateral fl. shorter.—Damp meadows. A. VII.

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3. *H. murinum* (L.); glumes of the intermediate spikelet linear-lanceolate ciliated, of the lateral ones setaceous scabrous, lateral fl. imperfect.—*E. B.* 1971. *R.* 1362. *Par.* 10.—Awn longer than the outer palea.—β. *arenarium* (Bab.); lower part of the st. buried, lengthened and rooting, thus appearing to have a creeping root.—Waste places. β. Sands on the sea-shore. A. VI. VII.

4. *H. maritimum* (Wither.); glumes scabrous, inner one of the lateral fl. half-ovate, the rest setaceous, lateral fl. imperfect. —*E. B.* 1205. *R.* 1364. *Par.* 10.—The smallest species.—Sandy pastures near the sea. A. VI.

Tribe XII. *Rottboelliineæ.*

48. NARDUS *Linn.*

1. *N. stricta* (L.). The only species.—*E. B.* 290. *R.* 1733. *Par.* 2.—St. and l. erect, slender, rigid. Height 5—8 in. Spike close. Outer palea with a short rough awn, coriaceous, often purplish. Inner palea membranous.—Moors and heaths. P. VII. *Mat-grass.*

49. LEPTURUS *R. Br.*

1. *L. incurvatus* (Trin.); spike cylindrical-subulate, glumes 2. —*E. B.* 760. *R.* 1333. *Par.* 2. *Rottboellia* L., Sm.—St. 2—6 in. long. Spike long, curved when dry.—β. *filiformis*; spikes much more slender filiform scarcely at all curved. *L. filiformis* (Trin. ?) *Par.* 3.—Sandy salt marshes. A. VII.

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II. CELLULAR PLANTS.

Substance of the plant wholly of cellular tissue (excepting in the Subclass *Ductulosæ* which has a few ducts). No woody fibre. No true flowers with stamens and pistils. No distinct embryo or cotyledons.

Class III.

ACOTYLEDONES or CRYPTOGAMEÆ.

Subclass I. DUCTULOSÆ.

Plants with a few ducts amongst the cellular tissue, but, according to Arnott, no tracheæ.

Order XCII. EQUISETACEÆ.

Leafless branched plants with a striated fistular stem, articulations sheathed at the base. Sporules surrounded by elastic clavate filaments and inclosed in thecæ arising from the peltate scales of terminal cones.—Vernation straight. Cuticle abounding in silex. Only one genus.

1. EQUISETUM *Linn.* Horse-tail.

* *Fertile stems unbranched, succulent; barren stems with whorled branches.*

1. *E. fluviatile* (Huds.); *sterile st. nearly smooth* with about 30 striæ and branches, branches rough doubly angular simple, fertile st. simple with numerous crowded large deeply toothed sheaths.—*E. B.* 2022.—Sterile st. 3—4 feet high, furnished from top to bottom with whorls of slender branches which have 4 angles each furnished with a longitudinal furrow. Fertile stems stout, a foot or more in height, with numerous large pale brown sheaths with 30—40 teeth.—Mr. Newman has shown (Phyt. i. 532.) that the *E. fluviatile* (Linn.) is a variety of *E. limosum*, but I have thought it better to retain the usual nomenclature in order to prevent confusion.—Watery places. P. IV.

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2. *E. Drummondii* (Hook.); *sterile st.* with about 20 striæ *very scabrous with prominent points* particularly above, branches simple with 4 simple angles, fertile st. simple with numerous crowded deeply toothed sheaths.—*E. B. S.* 2777.—Sterile st. 1—1½ foot high, nearly naked below, with numerous whorls of slender simply 4-angled branches in the upper part; general outline remarkably obtuse at the top. Fertile st. short, with numerous yellowish-white sheaths with black prominent ribs upwards and 12—14 teeth.—This appears to be the *E. arvense* of the Linn. Herb.—Wet places, rare. P. IV. S. I.

3. *E. arvense* (L.); sterile st. with few furrows slightly scabrous, branches simple rough with 4 simple angles, fertile st. simple with few lax distant sheaths.—*E. B.* 2020.—Sterile st. numerous, procumbent or ascending, with numerous whorls of numerous roughish simply 4-angled branches; general outline attenuated upwards. Fertile st. short, with few (4—5) sheaths. —Damp meadows. P. IV.

** *Sterile and fertile stems similar, simple or branched.*

4. *E. sylvaticum* (L.); sterile and fertile st with about 12 furrows and numerous whorls of slender *compound spreading or deflexed branches*, sheaths lax with 6—10 membranous rather blunt teeth.—*E. B.* 1874.—St. 12—18 in. high. General outline of the sterile st. pyramidal, of the fertile abrupt.—Wet shady places. P. IV. V.

5. *E. limosum* (L.); *st. smooth with* 14—16 *slight furrows*, teeth of the sheaths short rigid acute, *branches erect simple* whorled often abortive.—*E. B.* 929.—Usually growing in water. St. about 2 feet high, very smooth, simple below. Sheaths rather short with quite distinct short dark brown acute teeth. The branches are often not produced.—In stagnant water. P. VI. VII.

6. *E. palustre* (L.); *st. with* 6—8 *deep furrows* branched throughout, sheaths loose pale with acute wedgeshaped teeth tipped with brown and membranous at the edges.—*E. B.* 2021. —St. slightly rough. Catkin without an apiculus. Sheaths the colour of the stem or paler; membranous margins of the brown teeth nearly transparent. Occasionally on mountains the angles and teeth are fewer.—Spongy bogs. P. VI. VII.

7. *E. hyemale* (L.); st. simple very rough with 14—20 slender furrows, *sheaths close whitish but the top and bottom black*, teeth slender black deciduous.—*E. B.* 915.—St. 1—2 feet high, simple. Catkins with an apiculus. Sheaths widest at their top, at first green with a black crenate rim, then entirely black and ultimately pale in the middle and black above and below.—Damp banks and woods. P. VII. VIII.

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8. *E. Mackaii* (Newm.); st. simple or very slightly branched very rough with 8—12 furrows, *sheaths close ultimately wholly black*, teeth slender persistent.—*E. elongatum* Hook. not Willd. —St. 1—3 feet high, simple or with solitary distant branches. Catkins with an apiculus. Sheaths quite cylindrical, pale green with a black band beneath the teeth but ultimately wholly black. Teeth much more persistent than in the preceding, usually black. —Mr. Newman has shown (*Phyt.* i. 306.) that this is not the *E. elongatum* (Willd.) which is the same as *E. ramosissimum* (Desf.), and named it "after its original discoverer Mr. J. T. Mackay."——Mountain glens. P. VII. VIII.

9. *E. variegatum* (Schleich.); st. simple or very slightly branched very rough with 5—9 furrows, *sheaths slightly enlarged upwards green below black above*, teeth obtuse each tipped with a deciduous bristle.—*E. B.* 1987.—St. about a foot long, erect or decumbent, usually simple except at the base. Lower half of the sheaths green like the stem, upper part black; teeth persistent, black in the centre, with a white membranous margin. Catkin apiculate.—Sands near the sea or in wet places in mountain valleys. P. VII. VIII.

See Mr. Newman's valuable observations on the species of this genus in the *Phyt.* Nos. 15, 16, 17, 23, and the Rev. J. B. Brichan's excellent paper in No. 18. of the same Journal. It seems highly probable that a different arrangement of the genus will be the result of a more careful study of the living plants, as, to my mind, the present specific distinctions are far from being satisfactory.

Order XCIII. FILICES.

Leafy plants with a rhizoma or trunk. L. or fronds with a circinate vernation (Tribe VIII. excepted), simple or divided. Fructification springing from the veins on the under side or at the edge of the l. and consisting of 1-celled thecæ stalked and with an elastic ring or sessile and without a ring.

* *Thecæ with an elastic marginal ring.*

Suborder I. POLYPODIACEÆ.

Thecæ opening transversely; ring vertical, usually incomplete.

Tribe I. *POLYPODIEÆ.* Sori nearly circular, without an indusium.

1. Allosorus. Sori circular, at length confluent, concealed by the reflexed margin of the frond.

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2. Polypodium. Sori circular, naked; margin of the frond flat not reflexed.

3. Woodsia. Sori circular with an inferior involucre divided at the edges into numerous capillary segments.

Tr. II. *ASPIDIEÆ*. Sori nearly circular, covered by an indusium.

4. Lastrea. Indusium reniform, attached by the sinus. Veins distinct after leaving the midrib, not uniting with those of the adjoining pinnule.

5. Polystichum. Indusium circular, attached by the centre. Veins distinct after leaving the midrib.

6. Cystopteris. Indusium attached by its broad hooded base under the sori, with a lengthened fringed free extremity at first covering the thecæ.

Tr. III. *ASPLENIEÆ*. Sori oblong or linear, covered by an indusium opening longitudinally on one side.

7. Athyrium. Sori oblong-reniform. Indusium opening towards the central nerve or midrib.

8. Asplenium. Sori elongate straight. Indusium opening towards the central nerve or midrib.

9. Scolopendrium. Sori elongate straight, 2 together. Indusia of each pair opening towards each other.

Tr. IV. *GRAMMITIDEÆ*. Sori elongate without an indusium.

10. Ceterach. Lateral veins anastomosing, sori attached to their middle. Whole back of the frond covered with chaffy scales.

Tr. V. *ADIANTARIÆ*. Thecæ covered by a marginal or submarginal elongated part of the frond, or by a separated portion of the cuticle resembling an indusium.

11. Blechnum. Thecæ in a continuous line parallel to the midrib upon the transverse anastomosing veins, and covered by a continuous scarious indusium.

12. Pteris. Thecæ in a continuous marginal line covered by a continuous indusium formed of the inflexed margin.

13. Adiantum. Sori marginal, oblong or roundish, covered by distinct reflexed portions of the margin of the frond.

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Suborder II. HYMENOPHYLLACEÆ.

Thecæ opening irregularly; ring oblique, excentric, transverse, complete; receptacle terminating a vein at the margin of the frond.

Tr. VI. *HYMENOPHYLLEÆ.* The same as the Suborder.

14. TRICHOMANES. Thecæ on an elongated filiform receptacle within a cupshaped involucre of the same texture with the frond.

15. HYMENOPHYLLUM. Thecæ on a narrow subclavate receptacle within a two-valved involucre of the same texture with the frond.

** *Thecæ without an elastic ring.*

Suborder III. OSMUNDACEÆ.

Thecæ without an elastic ring, regularly 2-valved.

Tr. VII. *OSMUNDEÆ.* Vernation circinate, rachis solid. Thecæ stalked.

16. OSMUNDA. Thecæ clustered, arranged in a branched spike terminating the frond.

Tr. VIII. *OPHIOGLOSSEÆ.* Vernation straight, "rachis hollow." Thecæ sessile.

17. BOTRYCHIUM. Thecæ distinct, disposed in a compound spike attached to a pinnate or bipinnate frond.

18. OPHIOGLOSSUM. Thecæ connate, disposed in a simple distichous spike attached to an undivided frond.

Suborder I. *Polypodiaceæ.* Tribe I. *Polypodieæ.*

1. ALLOSORUS *Bernh.*

1. *A. crispus* (Bernh.); barren fronds bipinnate: pinnæ wedgeshaped or linear-oblong often bifid at the end, pinnæ of the fertile fronds oblong.—*Neurn. Ferns,* p. 17. *Pteris* Sm. *E. B.* 1160. *Cryptogramma* R. Br., Hook.—Fertile frond nearly triangular. Veins alternate, mostly forked and each branch terminating in a sorus which is totally without an indusium but concealed by the involute margins of the pinnule. Height 6—12 in. St. slender, very brittle.—Stony places on mountains, occasionally on old walls. P. VII. *Rock Brakes.*

2. POLYPODIUM *Linn.*

1. *P. vulgare* (L.); fronds deeply pinnatifid: lobes linear-

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oblong somewhat serrated all parallel upper ones gradually smaller.—*E. B.* 1149. *Newm.* 20.—Rhizoma brown, densely scaly, creeping. Fronds strapshaped. Sori large, on the upper part of the frond. Lateral veins of the pinnæ with 4 branches of which the lowest terminates in a sorus. Pinnæ occasionally bifid at the end, sometimes deeply serrate or even (*P. cambricum* L.) doubly pinnatifid.—On shady banks, walls and old trees. P. VIII.—X. *Common Polypody.*

2. *P. Phegopteris* (L.); *fronds pinnate*: pinnæ linear-lanceolate united at the base pinnatifid with linear-oblong blunt lobes, *lowest pair of leaflets distinct turned back* the rest pointing forwards, sori marginal.—*E. B.* 2224. *Newm.* 24.—Rhizoma nearly black, wiry, slightly scaly, creeping extensively. Fronds triangular. Leaflets very acute, pointing forwards, rather hairy, connected by their whole width with the rachis; the lowest pair quite distinct, with a minute stalk, standing forwards and pointing from the others. Lateral veins of the lobes simple, extending to the margin.—Damp places, loving the spray of waterfalls. P. VII.—IX.

3. *P. Dryopteris* (L.); *fronds ternate glabrous* divisions pinnate, pinnæ pinnatifid obtuse the uppermost nearly entire, sori marginal.—*E. B.* 616. *Newm.* 26.—Rhizoma black, wiry, creeping, slightly scaly. Stalk slender, brittle. The three divisions of the frond loosely spreading, the middle one rather the largest. Sori distinct. Not at all glandular.—Shady mountainous places. P. VII.

4. *P. calcareum* (Sm.); *fronds* subternate *glandular-mealy*: lower branches pinnate, pinnæ pinnatifid obtuse the uppermost nearly entire, sori marginal.—*E. B.* 1525.—Very different in habit from the preceding and always covered with very minute stalked glands giving a mealy character to the surface. Frond not so decidedly 3-fid, the lower branches being much smaller in proportion to the middle one; all the 3 erect, rigid.—On exposed mountain heaths or woods in limestone districts. P. VII. E.

3. Woodsia *R. Br.*

1. *W. ilvensis* (R. Br.); frond lanceolate pinnate hairy beneath. —*Newm.* 30.—Our plants appear to me to form but one species although they put on three different appearances as pointed out by Mr. Newman, viz.—*α. W. ilvensis* of authors; fronds elongated, pinnæ triangular with deep lobes.—*β. intermedia*; fronds lanceolate, pinnæ oblong with more shallow lobes. *W. ilvensis* Hook. *E. B. S.* 2616. The Teesdale plant connects this with *var. α.*—*γ. W. hyperborea* of authors; fronds oblong, pinnæ ovate with few rounded lobes.—*E. B.* 2023.—A very small plant; fronds 1—3 in. long, hairy and scaly. Rhizoma tufted. —Exposed alpine rocks, very rare. *α.* Ben Lawers. *Mr. Dickson!*

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β. Glyder-Fawr, N. Wales. Falcon Clints, Teesdale, Durham. γ. Ben Lawers. *Mr. W. Wilson*! I have not seen the plant from Clogwyn y Garnedd nor Clova. P. VII. E. S.

Tribe II. *Aspidieæ.*

4. Lastrea *Presl.*

1. *L. Thelypteris* (Presl); fronds pinnate, pinnæ linear-lanceolate pinnatifid slightly downy but *without glands*: lobes oblong with revolute edges, sori marginal.—*Aspidium* Sm. *E. B.* 1018. *Newm.* 45.—Earlier fronds barren, later fertile, lanceolate, 2 or 3 lowest pairs of pinnæ decreasing in size. Lobes blunt entire, at first sight they appear acute on the fertile fronds from the revolute margins; lateral veins alternate forked extending to the edge. Sori at length confluent. Rhizoma creeping widely.—Marshy and boggy places, rather rare. P. VII. VIII. *Marsh Fern.*

2. *L. Oreopteris* (Presl); fronds pinnate, pinnæ linear-lanceolate pinnatifid *glandular* beneath gradually decreasing from about the middle of the frond to near the root: lobes oblong, flat, sori marginal.—*Aspidium* Sm., *E. B.* 1019. *Newm.* 47.—Fronds remarkably narrowed downwards, rising in a circle from a tufted rhizoma, fragrant when bruised from the numerous glands on their under surface. Lobes blunt, entire: lateral veins simple or forked. Height 2—3 feet. The indusium is often scarcely distinguishable when the plant has all the appearance of a *Polypodium.*—Mountain heaths. P. VII. *Sweet Mountain Fern.*

3. *L. Filix-mas* (Presl); *fronds bipinnate,* pinnules obtuse and serrated, *sori* near the *central* nerve, *lateral nerves forked.*—*Aspidium* Sm., *E. B.* 1458. *Newm.* 50.—Fronds only slightly narrowed downwards and the lowest leaflet of considerable size, rising in a circle from the tufted rhizoma. Lobes usually a little combined at the base. Stipes and rachis nearly glabrous, yellow, or densely clothed with purple scales. Indusium very persistent. Height 3—4 feet.—Woods and banks. P. VI. VII. *Male Fern.*

4. *L. cristata* (Presl); fronds linear-oblong almost doubly pinnate, pinnæ short triangular-oblong pinnatifid, pinnules serrated the lowermost lobed and almost pinnatifid, *lateral nerves* of the lobes *with several branches.*—*Aspidium* Sm., *E. B.* 2125. *Newm.* 53.—Fronds long and narrow, quite erect, from a tufted rhizoma, broad at the base. Lower leaflets almost doubly pinnatifid. Stipes very long, with a few large brown scales at the base. Lateral nerves with numerous branches in the Holt plant, fewer in that from Oxton. Height about 2 feet.—Bogs and

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boggy heaths. Holt, and Fritton-broad, Norf. Oxton bogs, Nott. P. VIII. E.

5. *L. rigida* (Presl); *fronds* lanceolate bipinnate *glandular*, pinnules oblong blunt lobed and serrate the segments 2—3-toothed not spinulose, lateral nerves 3-fid, indusium persistent fringed.—*E. B. S.* 2724. *Newm.* 55.—Fronds erect; the lower pinnæ rather short, triangular; upper ones narrow; all pinnate. Stipes short, scaly. Covered with minute stalked glands. Height 1—2 feet.—Ingleborough and near Settle. P. VII. VIII. E.

6. *L. dilatata* (Presl); fronds subtripinnate, lobes oblong blunt inciso-pinnatifid, *segments spinose*-mucronate, indusium not fringed deciduous.—*Newm.* 58.—*α. triangularis*; frond broadly *triangular* nearly triply pinnate mostly arched, lobes generally convex with a nearly *straight midrib, indusium* minutely *denticulate* at the margin. *Aspidium dilatatum* (Sm.). *A. dumetorum* is only a small form of this plant which is often more erect, occasionally every part is concave instead of convex above.—*β. linearis*; frond mostly erect scarcely more than twice pinnate often very narrow its sides nearly *parallel* in the lower part, lobes nearly flat with a *wavy midrib, indusium "entire." A. spinulosum* (Sm.). Small forms of this are often called *A. dumetorum*.—I am in doubt if these plants are distinct species or varieties, but require a more perfect knowledge of them than I now possess. It appears that the *A. spinulosum* (Willd.) is a different plant, having "glandulose bristles" on its indusium; if therefore Smith's plant proves distinct it will require a new name, and I would suggest *Smithii* as highly appropriate.—Common. *β.* less generally distributed. P. VII. VIII.

5. Polystichum *Roth.*

1. *P. aculeatum* (Roth); *fronds bipinnate* lanceolate, pinnæ linear-lanceolate, pinnules stalked or decurrent ovate acutely-serrate.—*Newm.* 37.—A very variable species.—*α. aculeatum*; fronds broadly lanceolate, pinnules ovate acute nearly all stalked their base auricled on the upper edge oblique on the lower, lobe next the main rachis longer. In this plant only a few of the uppermost pinnules of each pinna are confluent, most of the pinnules have a small auricle on the upper or outer side of their base, and the pinnule next the main rachis is nearly always considerably longer than the others. *Aspidium aculeatum* Sm.—*β. angulare*; fronds broadly lanceolate, pinnules rather blunt nearly all stalked their base auricled on the upper edge oblique on the lower, pinnule next the main rachis scarcely longer than the others. Here a few of the uppermost pinnules are confluent, the auricle is larger in proportion to the pinnule and the lowest pinnule is often scarcely at all longer than the others. *A. angulare* Sm.—*γ. lobatum*; fronds narrowly lanceolate, pinnules decurrent often confluent, pinnule next the main rachis longer and

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larger than the others. Whole frond more rigid than in the other two varieties. Pinnules usually quite without auricles, not stalked but decurrent. Young plants often produce simply pinnate rather weak and flexible fronds, with stalked ovate or oblong simple pinnæ having their base strongly auricled on the upper edge and oblique on the lower, thus approaching the following species; it is then the *A. lobatum* β. *lonchitidoides* of Hooker.—These three plants are so intimately connected by intermediate forms that I cannot consider them to constitute more than one species.—Hedges, woods and shady banks. α. rather frequent, rare in Scotland. β. common in England and Ireland, not found in Scotland beyond Berwickshire. γ. common. P. VII.

2. *P. Lonchitis* (Roth); *fronds simply pinnate* linear-lanceolate, pinnæ lanceolate-falcate acute not lobed spinosely serrate overlapping very rigid their base auricled on the upper edge and rounded on the lower.—*E. B.* 797. *Newm.* 43.—It is often difficult to distinguish the lonchitiform state of the preceding from this plant, which is remarkably rigid. The pinnæ never have any tendency to become pinnate or even lobed; the basal auricle is very large; and the shape of the frond narrow. The lower pinnæ usually have an auricle on both edges at their base.—Alpine rocks. P. VII.

6. Cystopteris *Bernh.*

1. *C. fragilis* (Bernh.); fronds bipinnate, pinnæ ovate-lanceolate, pinnules ovate or ovate-lanceolate toothed or pinnatifid.—*Newm.* 31.—Remarkably variable, three forms may be distinguished, but they are connected by intermediate specimens.—α. *dentata*; pinnules ovate obtuse pointless bluntly toothed or rarely pinnatifid not decurrent. *Cystea dentata* Sm. *E. B.* 1588? "Pinnæ of young fronds reflexed, drooping, convex; sori more marginal" than in the following.—β. *fragilis*; pinnules ovate acute pinnatifid cut and serrated, slightly decurrent.—*E. B.* 1587.—A much more divided plant. Sori more central.—γ. *angustata*; pinnules linear-lanceolate deeply and acutely pinnatifid or slightly toothed at the margin, ultimate subdivisions oblong or linear not dilated rounded or ovate sometimes notched at the end. Known by its very narrow and usually distant subdivisions. *C. angustata* Sm.—These plants are excellently illustrated in Mr. Newman's work, to whose figures I must refer, as it is scarcely possible to describe their differences.—Common. α. "Only found in Scotland." *Newm.* I find what I consider as the same in Teesdale. β. Rocks and walls. γ. Craven, and N. Wales. P. VII.

[2. *C. alpina* (Desv.); frond bipinnate, pinnæ ovate, pinnules ovate deeply pinnatifid with broadly and shortly linear segments partly cloven and slightly toothed at the end.—*E. B.* 163.—Fronds very much divided but compact and close.—On a wall at

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Low Layton, Essex, where it is still occasionally found. Not a true native. P. VII.]

[Mr. Newman informs me, on the authority of Mr. W. Wilson, that *Onoclea sensibilis* is quite naturalized near Warrington.]

Tribe III. *Aspleniæ.*

7. Athyrium *Roth.*

1. *A. Filix-fœmina* (Roth); frond lanceolate pinnate, pinnæ linear acute regularly pinnate, pinnules linear-oblong quite distinct deeply serrate or pinnatifid, segments with 2 or 3 teeth.—*E. B.* 1459 (bad), and *A. irriguum* Sm. *E. B.* 2199. *Newm.* 62.—Fronds 1—3 or even 4 feet high, very much divided. Midrib of the pinnules wavy; lateral veins forked, the anterior branch bearing at about its middle the kidneyshaped sorus which at length becomes nearly round.—*α.* frond broad drooping, pinnules flat.—*β. convexum*; frond erect rigid rather narrow, pinnules usually decurved convex with inflexed margins.—The Rev. R. T. Bree found a curious variety at Trevenna, Cornw., with the pinnules laciniate or deeply divided into linear segments, which retains its characters in cultivation. Sometimes the pinnules are pinnate with toothed divisions. Mr. H. C. Watson found what appears to be a starved form of this species in the "alpine region of Ben Aulder, Inverness-shire."—Wet shady situations. P. VI. VII.

[2. *A. fontanum* (Presl); frond linear-lanceolate bipinnate, pinnæ oblong-ovate, pinnules obovate-cuneate with few deep sharp teeth.—*E. B.* 2024.—This plant does not associate well with the genus.—Formerly on Amersham church, Bucks. Said to have been found by Hudson in Cumberland or Westmoreland. P.] E.?

8. Asplenium *Linn.*

1. *A. lanceolatum* (Huds.); *fronds lanceolate* doubly pinnate, pinnules ovate deeply and sharply toothed or lobed, *sori short* nearly marginal.—*E. B.* 240. *Newm.* 66.—Fronds sometimes nearly linear and simply pinnate, always narrowed at the base. Sori short oblong, ultimately rather confluent into roundish masses.—Rocks and walls, rather rare. P. VI.—IX. E.

2. *A. Adiantum-nigrum* (L.); *fronds triangular* attenuated twice or thrice pinnate, pinnæ and pinnules triangular sharply toothed, *sori elongated* central.—*E. B.* 1950. *Newm.* 69.—Fronds always triangular. Sori 2 or 3 times as long as in the preceding, placed near the midrib and ultimately confluent in oblong masses often covering the whole under surface of the pinnule.—Rocks and walls. P. VI.—IX. *Black Spleenwort.*

3. *A. Ruta-muraria* (L.); fronds bipinnate, *pinnules rhomboid-*

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wedgeshaped notched or toothed at the end, *indusium jagged.*—*E. B.* 150.—Fronds 3—4 in. long.—Rocks and old walls. P. V.—IX. *Wall Rue.*

4. *A. alternifolium* (Wulf.); fronds simply and alternately pinnate, pinnules narrow-wedgeshaped the lowermost ternate, *indusium entire* at the edge.—*E. B.* 2258.—Fronds 3—4 in. long.—Rocks, very rare. P. VI.—IX. S.

5. *A. septentrionale* (Hull); fronds 2- or 3-cleft, segments elongate-lanceolate bifid.—*E. B.* 1017. *Newm.* 73.—Segments of the fronds very narrow, narrowing gradually downwards, with 1 or 2 short bifid lateral teeth, and bifid at the end.—Dry clefts of rocks, rare. P. VI.—X. E. S.

6. *A. marinum* (L.); frond linear simply pinnate, pinnæ stalked ovate or oblong serrate unequal and wedgeshaped at the base.—*E. B.* 392. *Newm.* 75.—Varying greatly in size. Sori not confluent.—Maritime rocks. P. VI.—X.

7. *A. viride* (Huds.); frond linear pinnate, pinnæ roundish-ovate or rhomboidal crenate stalked, *nerves* simple or *forked beyond the sori.*—*E. B.* 2257. *Newm.* 78. *Rachis green.*—Rocks on mountains. P. VI.—X.

8. *A. Trichomanes* (L.); frond linear pinnate, pinnæ roundish-ovate crenate stalked, *nerves forked below the sori.*—*E. B.* 576. *Newm.* 80.—*Rachis black.* I have gathered in Teesdale and *Mr. S. Gibson* has sent to me from near Burnley a curious variety of this plant with its pinnæ deeply but irregularly pinnatifid with linear notched segments.—Rocks and walls. P. V.—X. *Common Spleenwort.*

9. Scolopendrium *Sm.*

1. *S. vulgare* (Sym.); frond oblong strapshaped smooth simple with a cordate base, stripes shaggy.—*E. B.* 1150. *Newm.* 82.—Fronds 1—2 feet long, acute, often crisped towards the end and occasionally the end is multifid.—Damp and shady places. P. VII. VIII. *Hart's-tongue.*

Tribe IV. *Grammitideæ.*

10. Ceterach *Willd.*

1. *C. Officinarum* (Willd.); fronds pinnatifid covered beneath with dense scales, pinnæ alternate or opposite obtuse sessile.—*Scolopendrium Ceterach* Sm. *E. B.* 1244.—Fronds 3—6 in. long, green and smooth above, wholly covered by very numerous scales beneath, amongst which the thecæ are almost hidden.—Old walls and rocks. P. IV.—X.

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Tribe V. *Adiantariæ.*

11. Blechnum *Linn.*

1. *B. boreale* (Sw.); barren fronds pectinate-pinnatifid with broadly-linear rather obtuse pinnæ, fertile frond pinnate pinnæ linear acute.—*E. B.* 1159. Lomaria Spicant *Newm.* 11.—Each lateral nerve of the fertile pinnæ extending half-way to the margin and then turning at right angles and proceeding up the pinna until it reaches the next nerve. Thecæ attached in a continuous row to the longitudinal portions of the combined lateral nerves. This appears to be rather a *Blechnum* than a *Lomaria*.—Stony and heathy places. P. VII.

12. Pteris *Linn.*

1. *P. aquilina* (L.); fronds tripartite, branches bipinnate, pinnules linear-lanceolate the lower ones pinnatifid, segments oblong obtuse.—*E.B.* 1679. *Newm.* 13.—Fronds annual, 1—5 feet high, very much divided with spreading branches. A transverse section of the stipes presents a figure resembling the imperial eagle. —Woods and heaths. P. VII. *Brakes* or *Brachen.*

13. Adiantum *Linn.*

1. *A. Capillus-Veneris* (L.); frond bipinnate, pinnæ alternate roundish-wedgeshaped lobed thin, lobes of the fertile pinnæ terminated by a transversely linear-oblong sorus, sterile lobes serrated.—*E. B.* 1564. *Newm.* 9.—Rhizoma blackish, shaggy. Fronds 6—12 in. high. Stipes and rachis slender, nearly black. Pinnæ not jointed to the partial stalks.—Damp rocks near the sea. P. V.—IX. *Maiden-hair.*

Subor. II. *Hymenophyllaceæ.* Tr. VI. *Hymenophylleæ.*

14. Trichomanes *Linn.*

1. *T. speciosum* (Willd.); fronds 3 or 4 times pinnatifid glabrous, segments uniform linear, involucres solitary in the axils of the upper segments, seta at first included ultimately very prominent.—*E. B.* 1417. *Newm.* 89.—The frond in fact consists of hard wiry branched ribs each furnished throughout with a rather membranous wing. Rhizoma black, downy, very long. Fronds rather triangular, very much divided, 4—8 in. long.—In the name of this plant I have adopted the views of Mr. Newman in his beautiful *Hist. of Brit. Ferns*, in which he was supported by the opinion of my lamented friend Prof. Don.—Very damp shady places. Extremely rare. Turk waterfall, &c., Killarney. Glendine, Youghal. County Wicklow. P. IX. X. I.

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15. Hymenophyllum *Sm.*

1. *H. tunbridgense* (Sm.); fronds pinnate, pinnæ distichous, segments linear undivided or bifid spinosely-serrate, *involucre compressed spinosely serrate*, rachis broadly winged.—*E. B.* 162. —Slender and delicate. Rhizoma very long, threadshaped. Pinnæ, rachis and involucres in the same plane. Valves of the involucre adpressed throughout the greater part of their length, slightly gibbous at the base.—Amongst moss in damp and shady places. P. VII.

2. *H. Wilsoni* (Hook.); fronds pinnate, pinnæ recurved, segments linear undivided or bifid spinosely-serrate, *involucre inflated entire*, rachis slightly bordered.—*E. B. S.* 2686.—Resembling the preceding, but the pinnæ curve backwards and the involucres forwards. Valves of the involucre convex or gibbous throughout, touching only by their edges which are quite entire. —Amongst moss in damp and shady places. P. VII.

Suborder III. *Osmundaceæ.* Tribe VII. *Osmundeæ.*

16. Osmunda *Linn.*

1. *O. regalis* (L.); fronds bipinnate, pinnules oblong nearly entire dilated and slightly auricled at the base, clusters panicled terminal.—*E. B.* 209. *Newm.* 96.—Fronds erect or drooping, 1—8 feet high. Panicle of fruit bipinnate.—Boggy places. P. VII.—IX. *Flowering Fern.*

Tribe VIII. *Ophioglosseæ.*

17. Botrychium *Sw.*

1. *B. Lunaria* (Sw.); frond pinnate solitary, pinnæ lunate or fanshaped notched or crenate.—*E. B.* 318. *Newm.* 100.—Height 3—6 in. Pinnæ sometimes deeply notched, occasionally bearing a few thecæ. Fronds usually solitary, but sometimes there are two on the same stalk.—Pastures. P. VI. VII. *Moon-wort.*

18. Ophioglossum *Linn.*

1. *O. vulgatum* (L.); frond ovate obtuse.—*E. B.* 108. *Newm.* 103.—Height 4—12 in., erect. Spike clubshaped, usually rather longer than the frond, sometimes very long.—Pastures V. VI. *Adder's-tongue.*

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Order XCIV. MARSILEACEÆ.

Creeping plants with alternate erect leaves having a circinate vernation. Fructification consisting of globular nearly sessile coriaceous bodies with 3 or 4 cells and containing sacks including either other bodies that germinate or loose granules.

1. PILULARIA. Involucres solitary, nearly sessile, globose, coriaceous, 4-celled. Cells containing bodies of 2 kinds, granules and membranes containing minute grains.

1. PILULARIA *Linn.*

1. *P. globulifera* (L.). The only species.—*E. B.* 521.—Rhizoma elongated, creeping, producing leaves and roots at regular intervals. L. very slender, erect. Caps. slightly stalked, axillary, nearly spherical, hairy. — Margins of ponds and lakes. P. *Pillwort.*

Order XCV. LYCOPODIACEÆ.

Leafy plants with simple imbricated leaves; or stemless with erect subulate leaves. Fructification of axillary sessile thecæ with 2 or 3 valves and no ring, including minute powdery matter or sporules.

* *Caps. not opening.*

1. ISOETES. Fructification inclosed within the swollen base of the leaves. Sporules of two kinds attached to filiform receptacles.

** *Caps. bursting.*

2. LYCOPODIUM. Caps. 1-celled, 2-valved, containing powder; or 3-valved, containing 1—4 granules.

1. ISOETES *Linn.*

1. *I. lacustris* (L.); l. subulate roundish-quadrangular with 4 longitudinal jointed tubes.—*E. B.* 1084. *Hook. Lond.* t. 131.—Rhizoma a blunt tuber. L. slender, broad and flat at the base but elsewhere between cylindrical and quadrangular. There is still some doubt about the internal structure of the capsules.—Bottom of lakes and ponds in hilly districts. P. *Quill-wort.*

2. LYCOPODIUM *Linn.*

1. *L. clavatum* (L.); l. scattered incurved with a filamentous point, *spikes stalked* 2 or 3 together cylindrical, scales ovate-triangular membranous finely inciso-serrate.—*E. B.* 224.—St. prostrate, many feet long. Branches short, ascending. Spikes

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on long stalks, pale yellow. Scales on the stalks irregularly disposed in whorls.—Heathy places. P. VII. VIII. *Common Club-moss.*

2. *L. annotinum* (L.); l. scattered lanceolate mucronate serrulate, *spikes sessile* solitary terminal, scales roundish with an attenuated point membranous and jagged.—*E. B.* 1727.—St. prostrate, long. Branches rather long, erect, each year's growth marked by a spot where the leaves are adpressed. Spikes cylindrical, greenish-yellow, not persistent as supposed by Smith. —Stony mountains. Rare on Glyder Fawr, Caernarvonshire. Common in the Highlands. P. VIII. E. S.

3. *L. alpinum* (L.); *l. in four rows* imbricated acute keeled entire, spikes sessile solitary terminal, scales ovate-lanceolate flat, branches erect clustered forked level-topped.—*E. B.* 234.—St. prostrate, long. Fertile branches usually twice dichotomous, each division ending in a short cylindrical yellowish-green spike rather thicker than the branch.—Elevated mountains. P. VIII. *Savin-leaved Club-moss.*

4. *L. Selago* (L.); *l. in eight rows crowded* uniform linear-lanceolate acuminate, caps. not spiked but in the axils of the common leaves, st. erect forked level-topped.—*E. B.* 233.—St. short, erect or slightly decumbent, densely leafy. No separate spikes. At the extremity of the stems a few curious viviparous buds may usually be found; they are well illustrated by Mr. Newman (*Phyt.* i. 84.). Occasionally the stems in sheltered situations become much elongated.—Heaths, chiefly on mountains. P. VI.—VIII. *Fir Club-moss.*

5. *L. inundatum* (L.); l. scattered linear acute turned upwards, spikes terminal sessile leafy solitary upon short erect branches. —*E. B.* 239.—St. short, prostrate, rooting. Branches few, simple, short, erect, fertile.—Boggy heaths. P. VIII. IX.

6. *L. selaginoides* (L.); l. scattered lanceolate ciliated, spikes terminal solitary sessile leafy upon short erect branches, caps. of two kinds—*E. B.* 1148.—St. prostrate, much branched, rooting, slender. Flowering branches simple, short, erect. In addition to the 2-valved thecæ which occur in all our species, this plant produces others which are 3-valved and contain 3 or 4 large grains.—Boggy spots chiefly in mountainous places. P. VIII.

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OF

THE ORDERS AND GENERA.

*** The names in *italics* are synonyms.

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THE END.

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